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1. Report of the Auditor General for the year ended 31st March, 1912 Volume I, Parts A to J. Volume II, Parts K to U. Volume III, Parts V to Y. Presented by Hon. Mr. White, 14th January, 1913.

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2. The Public Accounts of Canada, for the fiscal year ended 31st March, 1912. Presented by Hon. Mr. White, 26th November, 1912.

Printed for distribution and sessional papers.

3. Estimates of sums required for the service of the Dominion for the year ending 31st March, 1914. Presented by Hon. Mr. White, 3rd February, 1913.

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4. Supplementary Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1913. Presented by Hon. Mr. White, 10th March, 1913.

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7. Report on dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of the Dominion of Canada, for five years and upwards prior to 31st December, 1911. Presented by Hon. Mr. White, 26th November, 1912.

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8. Report of the Superintendent of Insurance for year ended 1912. Presented by Hon. Mr. White.. .. ..*Printed for distribution nd sessional papers.*

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10. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1912. (Part I.—Canadian Trade). Presented by Hon. Mr. Foster, 30th January, 1913. *Printed for distribution and sessional papers.*

10*a*. Report of the Department of Trade and Commerce, for the year ended 31st March, 1912. (Part II.—Canadian Trade with (1) France, (2) Germany, (3) United Kingdom, and (4) United States). Presented by Hon. Mr. Foster, 12th December, 1912. *Printed for distribution and sessional papers*

10*b*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1912. (Part III.—Canadian Trade with Foreign Countries, except France, Germany, the United Kingdom and United States). Presented by Hon. Mr. Foster, 15th January, 1913.. .. ..*Printed for distribution and sessional papers.*

10*c*. Report of the Department of Trade and Commerce, for the fiscal year ended 31st March, 1912. (Part IV.—Miscellaneous Information). Presented by Hon. Mr. Reid, 17th February, 1913.. .. ..*Printed for distribution and sessional papers.*

10*d*. Report of the Board of Grain Commisioners for Canada. Presented by Hon. Mr Foster, 3rd February, 1913.. .. ..*Printed for distribution and sessional papers.*

10*e*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March 1912. (Part VI. Subsidized Steamship Services). Presented, 1913. *Printed for distribution and sessional papers.*

10*f*. Report of Trade and Commerce for fiscal year ended 31st March, 1912. (Part VII.—Trade of Foreign Countries, Treaties and Conventions). Presented, 1913. *Printed for distribution and sessional papers*

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11. Report of the Department of Customs for the year ended 31st March, 1912. Presented by Hon. Mr. Reid, 28th November, 1912 *Printed for distribution and sessional papers.*

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13. Report of the Department of Inland Revenue for year ended 31st March, 1912. (Part II.—Inspection of Weights and Measures, Gas and Electricity). Presented by Hon. Mr. Nantel, 25th November, 1912.. .. ..*Printed for distribution and sessional papers.*

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16. Report of the Director and Officers of the Experimental Farms for the year ending 31st March, 1912. Presented by Hon. Mr. Burrell, 14th January, 1913.
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17. Criminal Statistics for the year ended 30th September, 1911, (Appendix of the Report of the Minister of Agriculture, for the year 1911). Presented by Hon. Mr. Borden, 2nd June, 1913... .. ..*Printed for distribution and sessional papers.*

18. Return of the Twelfth General Election for the House of Commons of Canada, held on the 14th and 21st of September, 1911. Presented by Hon. The Speaker, 27th November, 1912.. .. ..*Printed for distribution and sessional papers.*

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20*a*. Canal Statistics for the season of Navigation, 1912. Presented by Hon. Mr. Cochrane, 15th April, 1913.. .. ..*Printed for distribution and sessional papers.*

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20*e*. Express Statistics of the Dominion of Canada, for the year ended 30th June, 1912. Presented by Hon. Mr. Cochrane, 12th February, 1913.
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21*c*. Supplement to Forty-fifth Report of the Department of Marine and Fisheries, for fiscal year 1911-12, Marine Branch—Influence of Icebergs and Land on the temperature of the Sea. Presented by Hon. Mr. Hazen, 17th February, 1913.
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22. Forty-fifth Annual Report of the Department of Marine and Fisheries, 1912,—Fisheries. Presented by Hon. Mr. Hazen, 5th December, 1912.
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30. The Civil Service List of Canada, 1912. Presented by Hon. Mr. Coderre, 3rd December, 1912.. .. ..*Printed for distribution and sessional papers.*

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34. Report of the Minister of Justice as to Penitentiaries of Canada, for the fiscal year ended 31st March, 1912. Presented by Hon. Mr. Doherty, 27th November, 1912.
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35. Report of the Militia Council for the fiscal year ending 31st March, 1913. Presented by Hon. Mr. Hughes, 14th January, 1913. ..*Printed for distribution and sessional papers.*

36. Report of the Department of Labour for the fiscal year ending 31st March, 1912. Presented by Hon. Mr. Crothers, 28th November, 1912.
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36a. Fifth Report of the Registrar of Boards of Conciliation and Investigation of the proceedings under "The Industrial Disputes Investigation Act, 1907," for the fiscal year ending 31st March, 1912. Presented by Hon. Mr. Crothers, 28th November, 1912.
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37. Eighth Annual Report of the Commissioners of the Transcontinental railway, for the year ended 31st March, 1912. Presented by Hon. Mr. Cochrane, 12th December, 1912.
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38. Report of the Department of the Naval Service, for the fiscal year ending 31st March, 1912. Presented by Hon. Mr. Hazen, 28th November, 1912.
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39. "Miscellaneous Unforeseen Expenses," from the 1st April, to the 21st November, 1912, in accordance with the Appropriation Act of 1912. Presented by Hon. Mr. White, 25th November, 1912... .. ..*Not printed*

40. Statement of Treasury Board over-rulings, under Section 44, Consolidated Revenue and Audit Act. Presented by Hon. Mr. White, 26th November, 1912... .. ..*Not printed.*

41. Statement in pursuance of Section 17 of the Civil Service Insurance Act, for the year ending 31st March, 1912. Presented by Hon. Mr. White, 26th November, 1912.
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42. Statement of Receipts and Expenditures of the Ottawa Improvement Commission to 31st March, 1912. Presented by Hon. Mr. White, 26th November, 1912.....*Not printed*

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44. Statement of Superannuation and Retiring Allowances in the Civil Service during the year ending 31st December, 1912, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, also whether vacancy is filled by promotion or by appointment, and salary of any new appointee. Presented by Hon. Mr. White, 26th November, 1912. .. ..*Not printed*

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45*a*. Return to lands sold by the Canadian Pacific Railway Company during the year which ended on the 1st October, 1912. Presented by Hon. Mr. Roche, 11th January, 1913.. .. ..*Not printed*

45*b*. Return to an Address to His Royal Highness the Governor General of the 27th January, 1913, for a copy of all applications made by the Canadian Pacific Railway Company for authorization to make new issue of stock, addressed to the Governor in Council, and of all correspondence with regard to the same. Presented 16th April, 1913, by Sir Wilfrid Laurier.. .. ..*Not printed*

46. Return to an Order of the House of the 18th March, 1912, for a copy of all reports made by the Inspector of Agents for placing Immigrants, both domestic servants and farm labourers, in Ontario and Quebec, during the years 1910 and 1911. Presented 27th November, 1912, by Mr. Sutherland.. .. ..*Not printed.*

47. Return to an Order of the House of the 11th March, 1912, for a copy of all letters, telegrams and other papers in connection with complaints of whatever nature against Commission Agents for placing farm labourers in Ontario, also officials connected with any agency in Ontario, during the year 1910 and 1911. Presented 27th November, 1912 by Mr. Sutherland.. .. ..*Not printed*

48. Copy of Order in Council No. P. C. 1275, dated 13th May, 1912, "Award of compensation to men belonging to the Royal Canadian Navy, who may be permanently disabled though injuries or illness contracted during drill, training or on duty." Presented by Hon. Mr. Hazen, 27th November, 1912.. .. ..*Not printed.*

48*a*. Copies of plans included in the tender of Messrs. Cammel, Laird & Company, dated 29th April 1911, for the construction of ships for the Canadian Naval Service. Presented by Hon. Mr. Hazen, 18th December, 1912.. .. ..*Not printed.*

48*b*. An Act respecting the Naval Service of Canada." (Copy of Order in Council, No. P. C. 126 dated 20th January, 1913, "Amendment to the Regulations for the Entry of Naval Cadets)." Presented by Hon. Mr. Hazen, 4th February, 1913.. ..*Not printed.*

49. Regulations under "The Destructive Insect and Pest Act." Presented by Hon. Mr. Burrell, 28th November, 1912.. .. ..*Not printed.*

50. Statement of the affairs of the Royal Society of Canada, for the year ended 30th April, 1912. Presented by Hon. Mr. White, 29th November, 1912.. .. ..*Not printed.*

51. Ordinances of the Yukon Territory passed by the Yukon Council in the year 1912. Presented by Hon. Mr. Coderre, 3rd December, 1913.. .. ..*Not printed*

52. Return of Orders in Council which have been published in the *Canada Gazette*, between 1st August, 1911, and 30th September, 1912, in accordance with the provisions of Section 77 of the Dominion Lands Act, Chapter 20 of the Statutes of Canada, 1908. Presented by Hon. Mr. Roche, 5th December, 1912.. .. ..*Not printed.*

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52*a*. Return of Orders in Council passed between the 1st August, 1911, and 30th September, 1912, in accordance with the provisions of Section 5 of the Dominion Land Survey Act, Chapter 21, 7-8 Edward VII. Presented 5th December, 1912, by Hon. Mr. Roche *Not printed.*

52*b*. Return of Orders in Council which have been passed and published in the *Canada Gazette* and in the British Columbia *Gazette*, between 1st August, 1911, and 30th September, 1912, in accordance with provisions of Subsection (*d*) of Section 38 of the regulations for the survey, administration, disposal and management of Dominion Lands within the 40-mile Railway Belt in the Province of British Columbia. Presented by Hon. Mr. Roche, 5th December, 1912.. .. ..*Not printed*

52*c*. Return to an Order of the House of the 24th February, 1913, for a copy of all regulations issued by the Minister of the Interior, relating to the disposition of Dominion lands between 8th April, 1905, and 12th October, 1911. Presented by Hon. Mr. Roche, 25th March, 1913.. .. ..*Not printed.*

53. A detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (28th November, 1911) submitted to the Parliament of Canada under Section 32 of Chapter 19, of the Revised Statutes of Canada, 1906. Presented by Hon. Mr. Coderre, 4th December, 1912.. .. ..*Not printed.*

54. Annual Return respecting Trade Unions under Chapter 125, R.S.C., 1906. Presented by Hon. Mr. Coderre, 4th December, 1912... .. ..*Not printed.*

55. Deliberation of the Canada-West Indies Conference, and Agreement between Canada and certain of the West India Colonies. Presented by Hon. Mr. Foster, 4th December, 1912.. .. ..*Printed for distribution and sessional papers*

56. Orders in Council passed between the 1st August, 1911, and 30th September, 1912, in accordance with the provisions of the Rocky Mountains Park Act, Chapter 60, Revised Statutes of Canada, 1906. Presented by Hon. Mr. Rogers, 4th December, 1912. *Not printed.*

56*a*. Return of Orders in Council passed between the 1st August, 1911, and 30th September, 1912, in accordance with the provisions of the Forest Reserves and Park Act, Section 19, of Chapter 10, 1-2 George V. Presented by Hon. Mr. Roche, 5th December, 1912. *Not printed.*

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57*a* Report on the organization of the Public Service of Canada, by Sir George Murray. Presented by Hon. Mr. Borden, 18th December, 1912. *Printed for distribution and sessional papers.*

58. Report of the proceedings for the preceding year of the Commissioners of Internal Economy of the House of Commons, pursuant to Rule 9. Presented by Hon. The Speaker, 9th December, 1912.. .. ..*Not printed.*

59. Schedules of Trade Transactions between the West Indies and Canada, the United States and the United Kingdom, compiled from the West Indian blue books and statistics. Presented by Hon. Mr. Foster, 12th December, 1912. *Printed for distribution and sessional papers.*

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59*a*. Trade Statistics of Imports and Exports in possession of the Government, *re* British West Indies. (*Senate*).. .. ..*Not printed.*

60. Return showing correspondence concerning the calling for tenders for the Ships of War of Canada, together with copies of tenders. Presented by Hon. Mr. Hazen, 12th December, 1912.. .. ..*Not printed.*

61. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, telegrams, reports and documents relating to the dismissal of John R McDonald, Heatherton, Antigonish County, as Indian agent for the district including the Counties of Antigonish and Guysborough, and the appointment of his successor. Presented 4th January, 1913.—*Mr. Chisholm* (*Antigonish*).. .. ..*Not printed.*

61*a*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Dr. C. P. Bissett, Physician to the Indians at Salmon River, Richmond County, N.S. Presented 14th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*b*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Michael Murphy, postmaster at Point Micheau, Richmond County, N.S. Presented 4th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*c*. Return to an Order of the House of the 9th December, 1912, for copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of David A. McLeod, Postmaster at Cleveland, Richmond County, N.S. Presented 14th January.—*Mr. Kyte*.. .. ..*Not printed.*

61*d*. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, letters, complaints, telegrams, reports, and other documents in the possession of the Post Office Department relating to the dismissal of John Milward, Postmaster at Stormount, Guysborough County, N.S. Presented 14th January, 1913.—*Mr. Sinclair.*
Not printed.

61*e*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents, relating to the dismissal of Kenneth F. McAskill, Postmaster at Loch Lomond, Richmond County, N.S. Presented 14th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*f*. Return to an Address to His Royal Highness the Governor General of the 25th March, 1912, for a copy of all letters, telegrams, memorandums and Orders in Council, relating to the dismissal of Mr. W. W. Hayden, late wharfinger of the government wharf at Digby, Nova Scotia. Presented 14th January, 1913.—*Mr. MacLean* (*Halifax*).
Not printed.

61*g*. Return to an Order of the House of the 11th December, 1912, for a copy of all complaints and charges made against W. B. Langley, assistant at Lobster Hatchery, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal and the appointment of a successor. Presented 14th January, 1913.—*Mr Sinclair*.. .. ..*Not printed.*

61*h*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Fred. E. Cox, engineer lobster hatchery at Isaac's Harbour, Guysborough County, N.S., and of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same. Presented 14th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

G1*i*. Return to an Order of the House of the 11th December, 1912, for a copy of all complaints and charges made against Simon Hodgson, engineer lobster hatchery at Isaac's Harbour, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal and the appointment of a successor. Presented 14th January 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

G1*j*. Return to an Order of the House of the 11th December, 1912 for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Henry Henlow, chief engineer at lobster hatchery at Canso, Guysborough County, N.S. Presented 14th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

G1*k*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of H. C. V. LeVatte, harbour master at Louisburg, Cape Breton South, N.S., and of evidence taken and report of investigations held by H. P. Duchemin, in regard to the same. Presented 14th January, 1913. *Mr. Carroll*.. .. ..*Not printed.*

G1*l*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John Cummings, assistant at the lobster hatchery at Isaac's Harbour, Nova Scotia, and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 14th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

G1*m*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of W. G. Matthews, coxswain, lifeboat crew at Canso, Guysborough County, N.S., and all evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 14th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

G1*n*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relating to the dismissal of Joseph Shoan, harbour master at North Sydney, N.S., in the riding of North Cape Breton and Victoria. Presented 14th January, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

G1*o*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents, relating to the dismissal of George H. Sampson, keeper of the storm signal at Lower L'Ardoise, Richmond County, N.S. Presented 14th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

G1*p* Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Alexis Vigneau, captain of the patrol boat at Arichat, Richmond County, N.S. Presented 14th January, 1913. *Mr. Kyte*.. .. ..*Not printed.*

G1*q* Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all correspondence, Orders in Council and all other papers or documents in any way relating to the dismissal of Emeri Thivierge, from the position of fisheries inspector for the Counties of Prescott and Russell. Presented 14th January, 1913. *Mr. Murphy*.. .. ..*Not printed.*

G1*r*. Return to an Order of the House of the 9th December, 1912, for a return showing all the public officers of the Inland Revenue Department in the County of St. Jean Iberville, removed by the present Government since 1st May, 1912, together with the names and duties of such persons, the reasons of their dismissal, the nature of the

CONTENTS OF VOLUME 27—*Continued.*

complaints against them, the names of the persons who brought these complaints; also a copy of all correspondence relating thereto, and of the reports of inquiries in the cases where such have been held. Presented 14th January, 1913.—*Mr. Demers.*

Not printed.

61*s*. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, complaints, petitions, memoranda, notes of evidence, reports of investigations and other documents in the possession of the Department of Inland Revenue regarding the dismissal of J. Fabien Bugeaud, Bonaventure, Quebec, assistant inspector of weights and measures in the Quebec district, and the appointment of his successor or successors, with the names, residence, salaries and duties; also of all documents relating to A. B. Caldwell, New Carlisle, Quebec, joint assistant inspector with J. Fabien Bugeaud, and the duties assigned to him, together with a copy of all recommendations for said new appointment. Presented 14th January, 1913.—*Mr. Marcil (Bonaventure)*.. .. ..*Not printed.*

61*t*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all correspondence, Orders in Council and all other papers or documents in any way relating to the dismissal of Duncan McArthur, from the Annuities Branch, while the said branch was attached to the Department of Trade and Commerce. Presented 15th January, 1913.—*Mr. Murphy*.. .. ..*Not printed.*

61*u*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports, recommendations and evidence taken under investigation by Dr. Shentliff, relating to the dismissal of Charles O. Jones, postmaster of Bedford, County of Missisquoi. Presented 15th January, 1913.—*Mr. Kay.*

Not printed.

61*v*. Return to an Order of the House of the 1st April, 1912, for a copy of all letters, telegrams, complaints or other papers or documents in the possession of the Government or any department thereof, relating to the dismissal of Archibald Barss, postmaster, New Harbour, West, Guysborough County, N.S. Presented 15th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

61*w*. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, documents, recommendation and other reports respecting the dismissal of Dr. A. Allaire as surgeon of the penitentiary of St. Vincent de Paul, and also respecting the payments of his gratuities, superannuation or retiring allowance. Presented 15th January, 1913.—*Mr. Wilson (Laval)*.. .. ..*Not printed*

61*x*. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, documents, recommendations and reports respecting the dismissal of Oscar Beauchamp as warden of the penitentiary of St. Vincent de Paul, and also respecting the payments of his gratuities, superannuation or retiring allowance. Presented 15th January, 1913.—*Mr. Wilson (Laval)*.. .. ..*Not printed.*

61*y*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of John McDonald, freight handler and checker Intercolonial railway at Sydney Mines Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 16th January, 1913.—*Mr. Mackenzie*.. .. ..*Not printed.*

61*z*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents and reports relating to the dismissal of Allan Kinney, of Linwood, Antigonish County, Nova Scotia, a sectionman on the Intercolonial rail-

CONTENTS OF VOLUME 27—*Continued.*

way, and for a statement in detail of the expenses in connection with the investigation of the charges against him. Presented 16th January, 1913.—*Mr. Chisholm (Antigonish)*.. .. ..*Not printed.*

61*aa*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents and reports relating to the dismissal of Charles Landry, of Pomket, Antigonish county, Nova Scotia, a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 16th January, 1913. *Mr. Chisholm (Antigonish)*.. .. ..*Not printed.*

61*bb*. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, documents, reports, correspondence, &c., relating to the dismissal of Patrick Decoste, an employee on the ferry steamer *Scotia* between Mulgrave and Point Tupper on the Intercolonial railway. Presented 16th January, 1913.. .. ..*Not printed.*

61*cc*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Harry E. McDonald, assistant engineer at St. Peters Canal, Richmond County, N.S Presented 13th January, 1913.—*Mr. Kyte.*

61*dd*. Return to an order of the House of the 9th December, 1912, for a copy of all letters, papers, documents, telegrams, and charges relating to a complaint against Neil Ross sectionman on the Intercolonial railway at West River, County of Pictou, and of the evidence taken at the investigation, of the report of the commissioner thereon, and of all letters, papers or other documents relating to the appointment of his successor. Presented 16th January, 1913.—*Mr. Macdonald*.. .. ..*Not printed.*

61*ee*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents and reports relating to the dismissal of James Armstrong, of Heatherton, Antigonish County, N.S., a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 16th January, 1913. *Mr. Chisholm (Antigonish).* *Not printed.*

61*ff*. Return to an Order of the House of the 4th December, 1912, for a copy of all letters, telegrams and other documents, relating to the dismissal of Thomas J. Gray, as car inspector on the Intercolonial railway at Westville, County of Pictou. Presented 16th January, 1913. *Mr. Macdonald*.. .. ..*Not printed.*

61*gg*. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, telegrams and reports relating to the dismissal of Colin Macdonald, of James River Station, County of Antigonish, as Intercolonial sectionman, and the appointment of his successor. Presented 16th January, 1913. *Mr. Chisholm (Antigonish)*.. .. ..*Not printed.*

61*hh*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of A. T. Gannon, car repairer and inspector Intercolonial railway at North Sydney, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 16th January 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61*ii*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents, and reports relating to the dismissal of Huber Myatte, Tracadie, Antigonish County, Nova Scotia, a sectionman on the Intercolonial railway and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 16th January, 1913.—*Mr. Chisholm* (*Antigonish*).
Not printed.

61*jj*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents, and reports relating to the dismissal of John McDonnell, Afton Station, Antigonish County, Nova Scotia, a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 17th January, 1913.—*Mr. Chisholm* (*Antigonish*).. .. ..*Not printed.*

61*kk*. Return to an Order of the House of the 9th December, 1911, for a copy of all letters, correspondence, documents and reports relating to the dismissal of William Landry, of Pomket, Antigonish County, Nova Scotia, a section foreman of the Intercolonial railway, and for a statement in detail of the expenses connected with the investigation of the charges againt him. Presented 17th January, 1913.—*Mr. Chisholm* (*Antigonish*).. .. ..*Not printed.*

61*ll*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, telegrams and other documents relative to the dismissal of D. J. McDougall, section foreman, Intercolonial railway, Grand Narrows, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—*Mr. McKenzie.*
Not printed.

61*mm*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Dan. A. Coffey, lockman at St. Peter's canal, Richmond County, N.S., and of the evidence taken and of the reports of investigation held by H. P. Duchemin, in regard to the same, and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Also, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of W. A. McNeil, lockman at St. Peter's canal, Richmond County, N.S., and of the evidence taken and of the report of investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 17th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*nn*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John P. Meagher, foreman deckhand on steamship *Scotia*, Mulgrave, Guysborough County, N.S., and of all evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

61*oo*. Return to an Order of the House of the 4th December, 1912, for a copy of all letters, telegrams, evidence taken, reports, &c., and of all correspondence between the Postmaster General and officers of his department, and James Gibson, ex-postmaster of Alameda, Sask., in connection with the instructions sent him to hand the office over to E. Cronk. Presented 17th January, 1913.—*Mr. Turriff*.. .. ..*Not printed.*

61*pp*. Return to an Order of the House of the 11th December, 1912, for a copy of all papers, documents and correspondence relating to the dismissal of Captain C. E. Miller from the 75th Regiment. Presented 17th January, 1913.—*Mr. Maclean* (*Halifax*).
Not printed.

CONTENTS OF VOLUME 27—*Continued.*

61*qq*. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, letters and telegrams relating to the dismissal of J. N. N. Poirier, collector of excise at Victoriaville, Quebec, and also of the inquiry made by N. Garceau, by the Minister of Inland Revenue, and especially of two affidavits given by Ludger Frechette and Joseph Faucher. Presented 17th January, 1913.—*Mr. Brouillard.* *Not printed.*

61*rr*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges correspondence, letters, telegrams, and other documents relative to the dismissal of Abraham Astephen, of North Sydney, N.S., interpreter Immigration Department at North Sydney, N.S., in the riding of North Cape Breton and Victoria. Presented 17th January, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61*ss*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all correspondence, Orders in Council, and all other papers or documents in any way relating to the dismissal of Robert Dow from the Immigration Branch of the Department of the Interior at Ottawa. Presented 17th January, 1913. —*Mr. Murphy*.. .. ..*Not printed.*

61*tt*. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, correspondence, &c., relating to the dismissal of John Ware of the Immigration Branch of the Interior Department at Halifax, N.S. Presented 17th January, 1913.—*Mr. Maclean (Halifax)*.. .. ..*Not printed.*

61*uu*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges correspondence, letters, telegrams, and other documents relative to the dismissal of Richard Hickey, agent Immigration Department at North Sydney, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same, and a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61*vv*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges correspondence, letters, telegrams, and other documents relative to the dismissal of Dr. J. W. McLean, of North Sydney, N.S., medical examiner, Immigration Department at North Sydney, N.S., in the riding of North Cape Breton and Victoria. Presented 17th January, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61*ww*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John A. McRea, lightkeeper, at Margaree Island, Inverness County, Nova Scotia, of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same, also a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—*Mr. Chisholm (Inverness)*.. .. .. ..*Not printed.*

61*xx*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Thomas Brymer, lightkeeper at Lower L'Ardoise, Richmond County, N.S. Presented 17th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*yy*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges correspondence, letters, telegrams and other documents relating to the dismissal of Desire Boudrot, buoy contractor, at Petit de Grat, Richmond County, N.S. Presented 17th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61*zz*. Return to an Order of the House of the 4th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents concerning the dismissal of Frederick F. Doucet, keeper of the lighthouse at the entrance of the harbour of Caraquet, County of Gloucester, and the nomination of his successor. Presented 17th January, 1913.—*Mr. Turgeon*.. .. ..*Not printed.*

61*aaa*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of W. H. Henlow, keeper of storm drum, Liscomb, Guysborough County, N.S. Presented 17th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

61*bbb*. Return to an Order of the House of the 4th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of David Falconer, lightkeeper at Caribou Island, County of Pictou. Presented 17th January, 1913.—*Mr. Macdonald*.. .. ..*Not printed.*

61*ccc*. Return to an Order of the House of the 4th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of M. Wilson Lawlor, harbour commissioner at North Sydney, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—*Mr. McKenzie*.

Not printed.

61*ddd*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of P. J. McDonald, harbour commissioner at North Sydney, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 17th January, 1913.—*Mr. McKenzie*.

Not printed.

61*eee*. Return to an Order of the House of the 9th December, 1912, for a return showing: 1. The names of all lightkeepers in the Province of Nova Scotia who were dismissed from office or employment since 10th October, 1911, together with the date of each dismissal. Presented 17th January, 1913.—*Mr. Maclean (Halifax)*.. .. ..*Not printed.*

61*fff*. Return to an Order of the House of the 4th December, 1912, for a return showing the detail and number of dismissals from public offices in the Department of Marine and Fisheries to this date in the County of Bonaventure, the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials and a copy of all correspondence with respect to the same, and of all reports of investigations where such were held; as well as a list of the new appointments made by the department, with names, residences, salaries and duties,and a copy of all recommendations of such appointments. Presented 17th January, 1913.—*Mr. Marcil (Bonaventure)*.

Not printed.

61*ggg*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of H. L. Tory, fishery officer at Guysborough, Guysborough County, N.S., and of all evidence taken, and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of the investigation. Presented 17th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

61*hhh*. Return to an Order of the House of the 4th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents in the possession of the Department of Marine and Fisheries relating to the dismissal of John W. Davis, fishery officer, Guysborough, N.S. Presented 17th January, 1913.—*Mr. Sinclair*.

Not printed.

CONTENTS OF VOLUME 27—*Continued.*

61*jjj*. Return to an Order of the House of the 4th December, 1912, for a copy of all charges correspondence, letters, telegrams and other documents relating to the dismissal of Martin Bourque, lightkeeper at River Bourgeois, Richmond County, N.S., and of the evidence taken and of the report of the investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 17th January, 1913. *Mr. Kyte*.. .. ..*Not printed.*

61*jjj*. Return to an Order of the House of the 4th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Frederick Poirier, buoy contractor, at Descouse, Richmond County, N.S. Presented 17th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*kkk*. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, letters, telegrams and petitions for and against the dismissal of Dr. George Pinault, as medical health officer of the Mic-Mac Indian reserve, at Ste. Anne de Restigouche, Bonaventure County, Quebec, and of all documents relating to the appointment of a successor, with the name, residence, salary and duties of the new appointee. Presented 20th January, 1913.—*Mr. Marcil*.. .. ..*Not printed.*

61*lll*. Return to an Order of the House of the 1st April, 1912, for a copy of all papers, letters, &c., concerning the dismissal of Frederick Veit, employed by the Department of Marine and Fisheries in the County of Gaspé. Presented 20th January, 1913.—*Mr. Lemieux*.. .. ..*Not printed.*

61*mmm*. Return to an Order of the House of the 1st April, 1912, for a copy of all letters, petitions, complaints, declarations and other documents in the possession of the Department of Marine and Fisheries, relating to the dismissal of Mr. Alfred Lalonde, employed in the warehouse of the Government yards at St. Joseph de Sorel and the appointment of his successor. Presented 20th January, 1913. *Mr. Cardin*..*Not printed.*

61*nnn*. Return to an Order of the House of the 1st April, 1912, for a copy of all letters telegrams, complaints or other papers or documents in the possession of the Government or any department thereof, relating to the dismissal of James Webber, lightkeeper, Tor Bay Point, N.S. Presented 20th January, 1913.—*Mr. Sinclair.*

Not printed.

61*ooo*. Return to an Order of the House of the 1st April, 1912, for a copy of all documents letters, inquiries, reports, evidence, &c., relating to the dismissal or the resignation of Baptiste Desjardins as lighthouse keeper at Kamouraska. Presented 20th January, 1913. *Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

61*ppp*. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, letters, telegrams and other documents relating to the dismissal of Angus Smith, pilot on the steamer *Earl Grey*, and also of all the evidence taken at the latest investigation held in regard to the said complaints, and of the report of the investigation with regard to the same. Presented 20th January, 1913—*Mr. Macdonald.*

Not printed.

61*qqq*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Michael J. Sampson, lightkeeper at Lower L'Ardoise, Richmond County, N.S. Presented 20th January, 1913. *Mr. Kyte*.. .. ..*Not printed.*

61 *rrr*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of William Hackett, harbour commissioner at North Sydney, Nova Scotia, in the riding

CONTENTS OF VOLUME 27—*Continued.*

of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin in regard to same, and a detailed statement of the expenses of such investigation. Presented 20th January, 1913.—*Mr. McKenzie.*

Not printed.

61*sss.* Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence and other documents in the possession of the Department of Marine and Fisheries relating to the dismissal of Hormidas Lacasse, as wharfinger on the government wharf at Wendover, County of Prescott, Ontario, and the appointment of his successor. Presented 20th January, 1913.—*Mr. Proulx*.. .. ..*Not printed.*

61*ttt.* Return to an Order of the House of the 9th December, 1912, for a copy of all documents, papers, evidence and correspondence, relating to the dismissal of Geoffrey Gorman, coxswain of the lifeboat station at Herring Cove, Halifax County, N.S. Presented 20th January, 1913.—*Mr. Maclean (Halifax)*.. .. .. *Not printed.*

61*uuu.* Return to an Order of the House of the 10th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Captain George Wetmore, harbour master at Yarmouth, Yarmouth County, N.S., and the same information regarding the appointment of Captain Wetmore's successor, and of all evidence taken and report of investigation held by Charles Lane in regard to the same, also a detailed statement of expenses of such investigation. Presented 20th January, 1913.—*Mr. Law*.. .. ..*Not printed.*

61*vvv.* Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Stanley Henlow, lightkeeper at Liscomb, Guysborough County, N.S., and of evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 20th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

61*www.* Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of H. C. V. LeVatte, fishery officer at Louisburg, Cape Breton South, N.S., and of the evidence taken and reports of investigations held by H. P. Duchemin, in regard to the same. Presented 20th January, 1913.—*Mr. Carroll*.. .. ..*Not printed.*

61*xxx.* Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Elias M. Boudrot, keeper of storm signal at Petit de Grat, Richmond County N.S., and of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 20th January, 1913.—*Mr Kyte*.. .. ..*Not printed.*

61*yyy.* Return to an Order of the House of the 10th December, 1912, for a return of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of A. B. Cox, Superintendent of Reduction Works at Canso, Guysborough County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 20th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*zzz.* Return to an Order of the House of the 9th December, 1912, for a copy of all complaints and charges made against Jeffrey Crespo, sub-collector of Customs at Harbour au Bouche, Antigonish County, Nova Scotia, and of all letters, telegrams, correspondence and reports relating in any way to his dismissal and the appointment of a successor. Presented 20th January, 1913.—*Mr. Chisholm (Antigonish).*

Not printed.

CONTENTS OF VOLUME 27—*Continued.*

61*aaaa*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, papers, charges and correspondence between the Department of Customs and all other persons regarding the dismissal from office of Thomas Cameron, preventive officer at Andover, N.B., and also of all evidence and reports thereon with reference to the dismissal of the said officer. Presented 20th January, 1913.—*Mr. Michaud.*

Not printed.

61*bbbb*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of L. W. Pye, customs officer at Liscomb, Guysborough County, N.S., and of all evidence taken and reports of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 20th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

61*cccc*. Return to an Order of the House of the 9th December, 1912, for a copy of all complaints, accusations, inquiries, reports, correspondence, and of all documents relating to the dismissal of Lucien O. Thisdale, a customs employee at Valleyfield, Quebec, and the appointment of his successor. Presented 20th January, 1913.—*Mr. Papineau.*

Not printed.

61*dddd*. Return to an Order of the House of the 11th December, 1912, for a copy of all letters, telegrams, correspondence, reports, and other documents relating to the dismissal of Alexander Macdonald of Doctor's Brook, Antigonish County, as sub-collector of customs. Presented 20th January, 1913.—*Mr. Chisholm (Antigonish).*

Not printed.

61*eeee*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of Henry Cann, customs official and preventive officer at North Sydney, Nova Scotia, in the riding of North Cape Breton and Victoria. Presented 20th January, 1913.—*Mr. McKenzie*.. .. ..*Not printed*

61*ffff*. Return to an Order of the House of the 10th December, 1912, for a copy of all documents concerning the dismissal of Charles Mennier, customs preventive officer at Marieville, Quebec. Presented 20th January, 1913.—*Mr. Lemieux*.. .. ..*Not printed.*

61*gggg*. Return to an Order of the House of the 5th December, 1912, for a copy of all charges, correspondence, letters, telegrams, instructions, minutes of evidence taken and had on any inquiry investigation had, held or taken, and of all other papers and documents relating to the dismissal of George H. Cochrane, Collector of Customs at the Port of Moncton, New Brunswick; together with a copy of all letters and other correspondence between the Honourable Minister of Customs, and the member representing the County of Westmorland, New Brunswick, in this House, and of all letters, papers, telegrams, recommendations, appointments, or other papers and documents relating to the appointment of a collector of customs to succeed the said George H. Cochrane. Presented 20th January, 1913.—*Mr Emmerson*.. .. ..*Not printed.*

61*hhhh*. Return to an Order of the House of the 22nd January, 1912, for a copy of all correspondence, documents, recommendations and reports respecting the dismissal of C Maillard, postmaster at St. Germain, Kamouraska, and the appointment of his successor. Presented 20th January, 1913.—*Mr. Lapointe (Kamouraska)* . ..*Not printed.*

61*iiii*. Return to an Order of the House of the 25th March, 1912, for a copy of all letters, telegrams and other documents, and of all complaints or accusations relating in any manner to the dismissal of Mr. Emile Archambault, letter carrier of Montreal, and a copy of the inquiry, and of the report of the inquiry held. Presented 20th January, 1913.—*Mr. Semple*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61*jjjj*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Norman Morrison, postmaster at Ferguson's Lake, Richmond County, N.S. Presented 21st January, 1913.—*Mr. Kyte*.. .. .. .

CONTENTS OF VOLUME 27—*Continued.*

61*ssss.* Return to an Address to His Royal Highness the Governor General of the 11th December, 1912, for a copy of all papers, documents, orders in council, telegrams, letters, &c., relating to the dismissal from office of Lemuel Bent, late Collector of Customs at Oxford, N.S. Presented 24th January 1913.—*Mr. Maclean (Halifax).* *Not printed.*

61*tttt.* Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Pascal Poirier, Collector of Customs at Descouse, Richmond County, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 24th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*uuuu.* Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, letters, telegrams, reports and other documents concerning the dismissal of Donald J. Hachey, Collector of Customs at Bathurst, County of Gloucester, and the appointment of his successor. Presented 24th January, 1913.—*Mr. Turgeon.* *Not printed.*

61*vvvv.* Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all correspondence, orders in council, and all other papers or documents in any way relating to the dismissal of John Maher, from the service of the Customs Department at Montreal. Presented 24th January, 1913.—*Mr. Murphy*.. .. ..*Not printed.*

61*wwww.* Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Peter Fongère, preventive and customs officer at Petit de Grat, Richmond county, N.S., and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same, and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 24th January, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61*xxxx.* Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of James Grantmyre, preventive officer at Little Bras D'or, N.S., in the riding of North Cape Breton and Victoria. Presented 24th January, 1913.—*Mr. McKenzie.* *Not printed.*

61*yyyy.* Return to an Order of the House of the 15th January, 1913, for a return showing all the employees on the Soulanges Canal who have been dismissed from their duties since the 21st September, 1911, by whom each of these employees has been replaced, and for what causes were they dismissed. Presented 27th January, 1913.—*Mr. Bure*. .. ..*Not printed.*

61*zzzz.* Return to an Order of the House of the 15th January, 1913, for a copy of all lettered documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Andrew Melville, locktender at Cardinal, Ontario. Presented 27th January, 1913. *Mr. Proulx*.. .. ..*Not printed.*

61*aaaaa.* Return to an Order of the House of 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of George Short, canal bridgetender at Cardinal, Ontario. Presented 27th January, 1913. *Mr. Guthrie*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61*bbbbb*. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of N. Broderick, locktender at Cardinal, Ontario. Presented 27th January, 1913.—*Mr. McMillan*.. .. ..*Not printed.*

61*ccccc*. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Thomas McLatchie, locktender at Cardinal, Ontario. Presented 27th January, 1913.—*Mr. Graham*.. .. .. *Not printed.*

61*ddddd*. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Elgin McLaughlin, locktender at Cardinal, Ontario. Presented 27th January, 1913.—*Mr. Emmerson*.. .. ..*Not printed.*

61*eeeee*. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Robert Robertson, locktender at Cardinal, Ontario. Presented 27th January, 1913.—*Mr. Lemieux*.. .. ..*Not printed.*

61*fffff*. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of William L. Gladstone, locktender at Cardinal, Ontario. Presented 27th January, 1913.—*Mr. Pugsley*.. .. ..*Not printed.*

61*ggggg*. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Byron VanCamp, locktender at Cardinal, Ontario. Presented 7th January, 1913.—*Mr. Murphy*.. .. ..*Not printed.*

61*hhhhh*. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Samuel English, canal bridge tender at Cardinal, Ontario. Presented 27th January, 1913.—*Mr. Carvell*.. .. ..*Not printed.*

61*iiiii*. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Edward F. Moran, locktender at Cardinal, Ontario. Presented 27th January, 1913.—*Mr. Oliver*.. .. ..*Not printed.*

67*jjjjj*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters correspondence, documents and reports relating to the dismissal of William R. Fougere, of Frankville, Antigonish County, N.S., a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigations of the charges against him. Presented 27th January, 1913.—*Mr. Chisholm (Antigonish)*. *Not printed.*

61*kkkkk*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents and reports relating to the dismissal of John Melanson, of Afton, Antigonish County, N.S., a sectionman on the Intercolonial railway, and for a statement in detail of the expenses connected with the investigation of the charges against him. Presented 27th January, 1913.—*Mr. Chisholm (Antigonish)*. *Not printed.*

61*lllll*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Ronald D. McDonald, fishery overseer, at Broad Cove, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 27th January, 1913.—*Mr. Chisholm (Inverness)*. *Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

51*mmmmm*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John McLean, fishery officer at Gabarouse, Cape Breton South, N.S., and of evidence taken and reports of investigations held by H. P. Duchemin, in regard to the same. Presented 27th January, 1913.—*Mr. Carroll*.. .. ..*Not printed.*

61*nnnnn*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of A. R. Forbes, fishery overseer at North Sydney, Nova Scotia in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 27th January, 1913.—*Mr. McKenzie.*
Not printed.

61*ooooo*. Return to an Order of the House of the 15th January, 1913, for a copy of all correspondence, letters, telegrams, complaints, petitions, and other documents concerning the dismissal of Sebastien Savoie, superintendent of the lobster hatchery at Shippigan, Gloucester County, N.B., and the appointment of his successor. Presented 27th January, 1913.—*Mr. Turgeon*.. .. ..*Not printed.*

61*ppppp*. Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of D. S. Hendsbee, weigher, reduction works, Canso, Guysborough County N.S., and of all evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 27th January, 1913.—*Mr. Sinclair*.. .. ..*Not printed.*

61*qqqqq*. Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of M. Muce, lightkeeper at Cheticamp Island, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 29th January, 1913.—*Mr. Chisholm (Inverness)*.. .. .. ..*Not printed.*

61*rrrrr*. Return to an Order of the House of the 15th January, 1913, for a copy of all papers, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Dr. J. D. R. Williams, collector of canal tolls at Cardinal, Ontario, and of the appointment of his successor. Presented 30th January, 1913.—*Mr. McMillan*.. .. ..*Not printed.*

61*sssss*. Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of John W. Bohan, preventive officer at Bath, Carleton County, N.B. Presented 3rd February, 1913. *Mr. Carvell*.. .. ..*Not printed.*

61*ttttt* Return to an Order of the House of the 15th January, 1913, for a copy of all papers documents, correspondence, &c., relating to the dismissal of J. V. Smith, sub-collector of customs at Wood's Harbour, Shelburne County, N.S. Presented 3rd February, 1913. —*Mr. Law*.. .. ..*Not printed.*

61*uuuuu* Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of John Y. Fleming, customs officer at Debec, Carleton County, N.B. Presented 3rd February, 1913.—*Mr. Carvell*.. .. ..*Not printed.*

61*vvvvv*. Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of Matthias Meagher, preventive officer at Debec, Carleton County, N.B. Presented 3rd February, 1913. *Mr. Carvell*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61*wwwww*. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, letters, telegrams, complaints, and of the evidence given at investigation, if one was held, relating to the dismissal of Mr. A. J. Gosselin, acting preventive officer of customs at St. Albans, Vermont, through the port of St. Armaud, County of Missisquoi. Presented 4th February, 1913.—*Mr. Kay*.. .. ..*Not printed.*

61*xxxxx*. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, letters, telegrams, and petitions for and against the dismissal of James W. Bannon, preventive officer of customs at St. Agnes de Dundee, County of Huntingdon also a copy of the report of investigation and evidence, if any, submitted to investigating commissioner. Presented 4th February, 1913.—*Mr. Robb*.. .. ..*Not printed.*

61*yyyyy*. Return to an Order of the House of the 4th December, 1912, for a return showing the number of postmasters that have been dismissed in the County of Pictou since 1st October, 1911; the names of the postmasters who have been appointed to succeed them; the causes of the dismissals and all complaints and correspondence with respect to same, and of all reports of investigation where investigations have been held. Presented 4th February, 1913.—*Mr. Macdonald*.. .. ..*Not printed.*

61*zzzzz*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all correspondence, orders in council, and all other papers or documents in any way relating to the dismissal of James Murphy from the position of postmaster at Tweed, Ontario. Presented 4th February, 1913.—*Mr. Murphy*.. .. ..*Not printed.*

61 (6*a*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of H. B. Easton, immigration agent at Prescott, Ontario. Presented 4th February, 1913.—*Mr. Murphy*.. .. ..*Not printed.*

61 (6*b*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of B. Hughes, immigration agent at Prescott, Ontario. Presented 4th February, 1913.—*Mr. Oliver*.. .. ..*Not printed.*

61 (6*c*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of George Walsh, immigration agent at Prescott, Ontario. Presented 4th February, 1913.—*Mr. Oliver*.. .. ..*Not printed.*

61 (6*d*). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of Newton S. Dow, immigration agent at McAdam Junction, York County, N.B. Presented 4th February, 1913.—*Mr. Carvell*.. .. ..*Not printed.*

61 (6*e*). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of Oliver Hemphill, immigration agent at Debec, Carleton County, N.B. Presented 4th February, 1913.—*Mr. Carvell*.. .. ..*Not printed.*

61 (6*f*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Martin Johnston, preventive officer at Rea Islands, Richmond County, N.S Presented 6th February, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (6*g*). Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, letters, telegrams and other documents respecting the dismissal of J. E. Phaneuf, postmaster of St. Hugues, County of Bagot. Presented 6th February, 1913.—*Mr. Marcile*.. .. ..*Not printed*

61 (6*h*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Murdock McCutcheon, postmaster at Sonora, Guysborough County, N.S., and of all evidence taken and report of investigation held by Mr. H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 6th February, 1913.—*Mr. Sinclair*.. .. ..*Not printed*

61 (6*i*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Duncan Gillies, fishery overseer at Baddeck, C.B., in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 7th February, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61 (6*j*). Return to an Order of the House of the 9th December, 1912, for a copy of all complaints, accusations, correspondence, petitions and of all documents and reports respecting the dismissal of Antonio Leduc, postmaster of St. Timothée, in the County of Beauharnois and the appointment of his successor. Presented 7th February, 1913.—*Mr. Papineau*.. .. ..*Not printed.*

61 (6*k*). Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of the recommendation to council, the order in council, all correspondence with the government or any member thereof, and of all letters, documents and papers in any way connected with the dismissal of Charles Arthur Bowman from the engineering branch of the Department of Railways and Canals.—*Mr. Clark (Red Deer)*.. .. ..*Not printed.*

61 (6*l*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, evidence, reports, letters, correspondence, &c., relating to the dismissal of Elnathan D. Smith, fishery overseer, Shag Harbour, Shelburne County, N.S. Presented 11th February, 1913.—*Mr. Law*.. .. ..*Not printed.*

61 (6*m*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Donald McAulay, lightkeeper, Plaister, Baddeck Bay, C.B., riding of North Cape Breton and Victoria, and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation. Presented 11th February, 1913.—*Mr. McKenzie.*
Not printed.

61 (6*n*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, letters, correspondence, &c., relating to the dismissal of John Fredericks, lightkeeper at East Jordan, Shelburne County, N.S. Presented 11th February, 1913.—*Mr. Law*.. .. ..*Not printed.*

61 (6*o*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, letters, correspondence, &c., relating to the dismissal of John Fredericks, lightkeeper at East Jordan, Shelburne County, N.S. Presented 11th February, 1913.—*Mr. Law*.. .. ..*Not printed*

CONTENTS OF VOLUME 27—*Continued.*

61 (6*p*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, letters, correspondence, &c., relating to the dismissal of John C Morrison, harbour master at Shelburne, N.S. Presented 11th February, 1913.—*Mr. Maclean (Halifax)*.. .. .. .

CONTENTS OF VOLUME 27—*Continued.*

G1 (6*x*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, telegrams and other documents relative to the dismissal of Captain George Livingstone, custom officer at Big Bras D'Or, Cape Breton, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same and a detailed statement of the expenses of such investigation. Presented 11th February, 1913.—*Mr. McKenzie.*
Not printed.

G1 (*y*). Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, reports and other documents and papers relating to the dismissal of H. Lacasse, as postmaster at Wendover, County of Prescott, Ontario, and the appointment of his successor. Presented 13th February, 1913.—*Mr. Proulx*.. ..*Not printed*

G1 (6*z*). Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence and other papers connected with the removal of Harry A. Drigg, from the position of postmaster at Grassey Lake, Alberta. Presented 13th February, 1913.—*Mr. Buchanan*.. .. ..*Not printed*

G1 (7*a*). Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, memoranda, orders in council, and correspondence relating to the dismissal of A. H. Stratton, late postmaster at Peterborough, Ont. Presented 17th February, 1913.—*Mr. Maclean* (*Halifax*).
Not printed

G1 (7*b*). Return to an Order of the House of the 10th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Henry Burrell, postmaster, Yarmouth North, Yarmouth County, N.S., and the same information regarding the appointment of Henry Burrell's successor, and of the evidence taken and report of investigation held by Charles Lane in regard to the same, also a detailed statement of expenses of such investigation. Presented 18th February, 1913.—*Mr. Law*.. .. ..*Not printed.*

G1 (7*c*). Return to an Order of the House of the 4th December, 1912, for a return showing all the postmasters dismissed by the present government in the County of Gloucester, the names of such persons, the reasons for their dismissal, nature of the charges made against them; also a copy of all correspondence connected with it, and reports of investigations in cases where such investigations were instituted. Presented 18th February, 1913.—*Mr. Turgeon*.. .. ..*Not printed.*

G1 (7*d*). Return to an Order of the House of the 10th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Dr. Charles A. Webster, port physician at Yarmouth, County of Yarmouth N.S., and the same information regarding the appointment of Dr. Webster's successor. Presented 18th February, 1913.—*Mr. Law*.. .. ..*Not printed*

G1 (7*e*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, papers, charges and correspondence between the Department of Marine and Fisheries and all other persons, regarding the dismissal of Jos. Lord, keeper of lighthouses at Pointe à la Mule on the River Richelieu, Parish of St. Blaise, County of Saint Jean and Iberville and of all reports thereon with reference to the dismissal of the said Mr. Lord. Presented 19th February, 1913.—*Mr. Demers*.. .. .. ..*Not printed.*

G1 (7*f*). Return to an Order of the House of the 15th January, 1913, for a copy of all correspondence, letters, telegrams and petitions concerning the dismissal of Henri Friolet, wharfinger at Caraquet, and Richard Southwood, wharfinger and agent of the Storm Signal Service at Bathurst, Gloucester County, N.B., and the appointment of their successors. Presented 19th February, 1913.—*Mr. Turgeon*.. .. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (*7g*). Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, letters, telegrams, reports and other documents, respecting the removal of Joseph L. Robichaud, lighthouse keeper at Miscou, County of Gloucester and the appointment of his successor; also of all correspondence respecting the engagement of the engineer of fog alarm system attached to that station, and the certificates required by the Minister of Marine, showing the competence of that engineer; with the names of the new keeper and of the said engineer and their ages. Presented 19th February, 1913.—*Mr. Turgeon*.. .. ..*Not printed.*

61 (*7h*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Captain Pope as lighthouse keeper at Scatarie, Cape Breton South, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 19th February, 1913.—*Mr. Carroll*.. .. ..*Not printed*

61 (*7i*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Captain W. W. Lewis, as shipping master at Louisburg, Cape Breton South, Nova Scotia, and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 19th February, 1913.—*Mr. Carroll.*

Not printed.

61 (*7j*). Return to an Order of the House of the 4th December, 1912, for a return showing the names of postmasters that have been dismissed in the County of Bonaventure since 1st October, 1911; the names of the postmasters who have been appointed to succeed them; the causes of the dismissals and a copy of all complaints and correspondence with respect to same, and of all reports of investigations where such have been held, with the reasons given for not holding any such investigation, when not held. Presented 19th February, 1913.—*Mr. Marcil*.. .. ..*Not printed*

61 (*7k*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of George Hines, lighthouse keeper at South Ingonish, riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same, and a detailed statement of the expenses of such investigation. Presented 20th February, 1913.—*Mr. McKenzie*..*Not printed.*

61 (*7l*). Return to an Order of the House of the 15th January, 1913, for a return showing a list of the lighthouse keepers removed by the present government in the County of Two Mountains, the names of such persons, the reasons for their dismissal, the nature of the complaints made against them; also a copy of all correspondence and petitions relating thereto, and reports of inquiries in the cases, where such have been held; and also the names of their successors. Presented 20th February, 1913.—*Mr. Ethier*.. .. ..*Not printed.*

61 (*7m*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Archibald McDonald, preventive officer at Mull River, Inverness County, Nova Scotia. Presented 20th February, 1913.—*Mr. Chisholm (Inverness)*..*Not printed.*

61 (*7n*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, correspondence on file referring to the dismissal of Donald Chisholm, of Tracadie, in the County of Antigonish, as preventive officer. Presented 20th February, 1913.—*Mr. Chisholm (Antigonish)*... .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (*7o*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, reports and other documents relative to the dismissal of Edward C. Humphreys, of Trenton, N.S., as an officer of the Inland Revenue Department and to the appointment of his successor. Presented 20th February, 1913.—*Mr. Macdonald.* *Not printed.*

61 (*7p*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of H. J. Fixott, port physician at Arichat, Richmond County, N.S. Presented 21st February, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61 (*7q*). Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, letters, telegrams and other documents relating to the dismissal of D. Morin as postmaster of St. Pie de Bagot, County of Bagot. Presented 21st February, 1913.—*Mr. Marcil (Bagot)*.. .. ..*Not printed.*

61 (*7r*). Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, investigations and papers generally concerning the dismissal of Ernest Paquin, postmaster of St. Cecile de Levrard, County of Nicolet. Presented 21st February, 1913.—*Mr. Lemieux*.. .. ..*Not printed.*

61 (*7s*). Return to an Address to His Royal Highness the Governor General of the 17th February, 1913, for a copy of all complaints and charges made against John R. Mc Donald, Indian agent at Heatherton, Antigonish County, of the recommendations t council and of the order in council made thereon, and of all letters, correspondence, and documents connected in any way with his dismissal. Presented 25th February, 1913.—*Mr. Chisholm (Antigonish)*... .. ..*Not printed.*

61 (*7t*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Joseph Day, customs officer at Little Bras D'Or, C.B., in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 25th February, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61 (*7u*). Return to an Address to His Royal Highness the Governor General of the 29th January, 1913, for a copy of all complaints against Duncan McLeod, appraiser of customs at Sherbrooke, Province of Quebec, of all information obtained as to his conduct through seizures of goods by special officers of customs and by investigation; of all reports of investigation; of the order in council dismissing said Duncan McLeod; and of all correspondence between him and the Department of Customs. Presented 25th February, 1913.—*Mr. McCrae*.. .. ..*Not printed.*

61 (*7v*). Return to an Order of the House of the 17th February, 1913, for a copy of all papers, letters, telegrams, evidence, &c., given at the investigation or investigations and of reports of such investigations, relating to the dismissal of Edouard D Chasson, sub-collector of customs at Lamèque, Gloucester County, and the appointment of his successor. Presented 25th February, 1913.—*Mr. Turgeon*.. ..*Not printed.*

61 (*7w*). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of George F Briggs, customs officer at McAdam Junction, York County, N.B. Presented 25th February, 1913.—*Mr. Carvell*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (7*x*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of William A. Duan, lightkeeper at Green Island, Richmond County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 25th February, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

61 (7*y*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, charges, correspondence, letters, telegrams and other documents relating to the dismissal of Thomas Cameron, preventive officer at Andover, N.B., and of the evidence taken and reports of investigation held by Mr. E. T. C. Knowles, in connection with the same. Presented 26th February, 1913.—*Mr. Michaud*.. .. ..*Not printed.*

61 (7*z*). Return to an Order of the House of the 29th January, 1913, for a copy of all complaints and charges made against Joseph McDonald, late of the customs office at Sydney, Cape Breton, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal and the appointment of his successor. Presented 26th February, 1913.—*Mr. Carroll*.. .. ..*Not printed*

61 (8*a*). Return to an Order of the House of the 29th January, 1913, for a copy of all complaints and charges made against Angus McGillivray, late of customs office at Glace Bay, Cape Breton South, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal and the appointment of his successor. Presented 26th February, 1913.—*Mr. Carroll*.. .. ..*Not printed.*

61 (8*b*). Return to an Order of the House of the 3rd February, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Roderick Bain, boatman at New Campbellton, riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of the investigation held by H. P. Duchemin, in regard to same, with a detailed statement of expenses of such investigation. Presented 26th February, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61 (8*c*). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of W. A. Scott, lockmaster at Cardinal, Ontario, and of the appointment of his successor. Presented 27th February, 1913.—*Mr. McMillan.*
Not printed.

61 (8*d*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Bert Johnson, lockman at Nicholson, Ontario. Presented 27th February, 1913.—*Mr. Turgeon*.. .. ..*Not printed.*

61 (8*e*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of John Merrifield, lockmaster at Burritts Rapids, Ont., and the appointment of his successor. Presented 27th February, 1913.—*Mr. Chisholm.*
Not printed.

61 (8*f*). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Neil Cummings, lockmaster at Cardinal, Ontario, and of the appointment of his successor. Presented 27th February, 1913.—*Mr. McMillan*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (*8g*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, papers, charges and correspondence between the Department of Railways and Canals and all other persons, regarding the dismissal of Mr. François Chagnon, lockkeeper at Saint Jean, County of Saint Jean and Iberville, and of all reports thereon with reference to the dismissal of the said Mr. Chagnon. Presented 27th February, 1913.—*Mr. Demers*.. .. ..*Not printed.*

61 (*8h*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Neil McNeil, bridge tender, Intercolonial railway, at Grand Narrows in the riding of North Cape Breton and Victoria. Presented 27th February, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61 (*8i*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Archibald McKenzie, sectionman, Intercolonial railway, at Grand Narrows, in the riding of North Cape Breton and Victoria. Presented 27th February, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61 (*8j*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of John Fraser, bridge tender, Intercolonial railway, at Grand Narrows, in the riding of North Cape Breton and Victoria. Presented 27th February, 1913.—*Mr. McKenzie*.. .. ..*Not printed.*

61 (*8k*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Demetrius Crozier, lockman at Merrickville, Ontario. Presented 27th February, 1913.—*Mr. Proulx*.. .. ..*Not printed.*

61 (*8l*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Patrick Cussuk, lockman at Merrickville, Ontario. Presented 27th February, 1913.—*Mr. Michaud*.. .. ..*Not printed.*

61 (*8m*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Joseph H. Webster, lockman at Nicholson, Ontario. Presented 27th February, 1913. *Mr. Pacaud*.. .. ..*Not printed.*

61 (*8n*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Cyrus O'Neil, lockman at Nicholson, Ontario. Presented 27th February, 1913. *Mr. Kyte*... .. ..*Not printed.*

61 (*8o*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Michael Laughtin, bridgeman at Burritts Rapids, Ontario. Presented 27th February, 1913.—*Mr. Papineau*.. .. ..*Not printed.*

61 (*8p*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of John McKay, bridgeman at Becketts, Ontario. Presented 27th February, 1913. *Mr. Lanctot*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (8*q*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Edward Proctor, lockman at Burritts Rapids, Ont. Presented 27th February, 1913.—*Mr. Neely*.. .. ..*Not printed.*

61 (8*r*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of William Morrison, lockman at Burritts Rapids, Ont. Presented 27th February, 1913.—*Mr. Cash*.. .. ..*Not printed.*

61 (8*s*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of Adam Henderson, bridgemaster at Cardinal, Ontario. and of the appointment of his successor. Presented 27th February, 1913.—*Mr. Murphy.* *Not printed.*

61 (8*t*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of James Feehan, fishery guardian or warden at Tracadie Harbour and Savage Harbour, Prince Edward Island. Presented 27th February, 1913.—*Mr. Hughes (Kings, P.E.I.)*.. .. ..*Not printed.*

61 (8*u*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of John C. McNeil, lighthouse keeper at Grand Narrows, in the riding of North Cape Breton and Victoria. Presented 27th February, 1913.—*Mr. McKenzie.* *Not printed.*

61 (8*v*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of A. A. Chisholm, fishery overseer at Margaree Forks, Inverness County, Nova Scotia. Presented 28th February, 1913.—*Mr. Chisholm (Inverness)*.. ..*Not printed.*

61 (8*w*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Charles E. Aucoin, collector of customs at Cheticamp, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by Mr. H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 28th February, 1913.—*Mr. Chisholm (Antigonish).* *Not printed.*

61 (8*x*). Return to an Order of the House of the 17th February, 1913, for a copy of all complaints and charges made against Charles L. Gass, late postmaster at Bayfield. Antigonish County, of the evidence taken, if any, before Commissioner Duchemin, and of his report thereon and of all letters, telegrams and documents of every kind relating to his dismissal and the appointment of his successor. Presented 28th February, 1913.—*Mr. Chisholm (Antigonish)*.. .. ..*Not printed.*

61 (8*y*). Return to an Order of the House of the 17th February, 1913, for a copy of all letters and correspondence exchanged in reference to the dismissal of Cyprien Martin. of St. Basile, County of Madawaska, N.B., between the Department of Customs and the said Mr. Martin as preventive officer. Presented 28th February, 1913.—*Mr. Michaud*.. .. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (8*z*). Return to an Order of the House of the 9th December, 1912, for a copy of all complaints and charges made against Angus A. Boyd, postmaster at Boyd's post office, Antigonish County, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal, and the appointment of a successor. Presented 28th February, 1913.—*Mr. Chisholm* (*Antigonish*).. .. ..*Not printed.*

61 (9*a*). Return to an Order of the House of the 9th December, 1912, for a copy of all complaints and charges made against John B. Macdonald, postmaster at Glasburn, Antigonish County, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal, and the appointment of a successor. Presented 28th February, 1913.—*Mr. Chisholm* (*Antigonish*).. .. ..*Not printed*

61 (9*b*). Return to an Order of the House of the 9th December, 1912, for a copy of all complaints and charges made against Alex. G. Chisholm, postmaster at Ohio, Antigonish County, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal, and the appointment of a successor. Presented 28th February, 1913.—*Mr. Chisholm* (*Inverness*).. .. ..*Not printed*

61 (9*c*). Return to an Order of the House of the 9th December, 1912, for a copy of all complaints and charges made against John J. McLean, postmaster at Cross Roads, Ohio, Antigonish County, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal and the appointment of a successor. Presented 28th February, 1913.—*Mr. Chisholm* (*Inverness*).. .. ..*Not printed*

61 (9*d*). Return to an Order of the House of the 9th December, 1912, for a copy of all complaints and charges made against Dougald McDonald, postmaster at Doctors Brook, Antigonish County, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to his dismissal, and the appointment of his successor. Presented 28th February, 1913. *Mr. Chisholm* (*Antigonish*).. .. ..*Not printed.*

61 (9*e*). Return to an Order of the House of the 9th December, 1912, for a copy of all complaints and charges made against Dan. A. McInnes, postmaster at Georgeville, Antigonish County, Nova Scotia, and of all letters, telegrams, and correspondence relating in any way to his dismissal, and the appointment of his successor. Presented 28th February, 1913.—*Mr. Chisholm* (*Antigonish*).. .. ..*Not printed.*

61 (9*f*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, letters, correspondence, telegrams and other documents relating to the dismissal of E. A. Asker, harbour master at Campbellton. Presented 3rd March, 1913.—*Mr. Reid* (*Restigouche*).. .. ..*Not printed.*

61 (9*g*). Return to an Order of the House of the 10th February, 1913, for a copy of all papers, letters, documents and orders relative to the dismissal of Fred Shultz as caretaker of the armouries at Kentville, Nova Scotia, and of the appointment of William Shoop in his place and also for a statement of the stores in said armouries in the years 1910, 1911, 1912, respectively, and for a copy of all orders and regulations relative to the duties of such caretaker. Presented 3rd March, 1913.—*Mr. Macdonald.* *Not printed.*

61 (9*h*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Dr. Freeman O'Neil, from the Marine Hospital at Louisburg, Cape Breton South, N.S., and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 10th March, 1913. *Mr. Carroll..Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (9*i*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Leon N. Poirier, wharfinger at Descouse, Richmond County, N.S. Presented 10th March, 1913.—*Mr. Kyte*.. .. .. .

CONTENTS OF VOLUME 27—*Continued.*

G1 (9*s*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Edward Landry, lightkeeper, Petite de Grat, Richmond County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 18th March, 1913.—*Mr. Kyte*.. .. ..*Not printed.*

G1 (9*t*). Return to an Order of the House of the 27th January, 1913, for a copy of all documents, petitions, letters, correspondence, inquiries and reports concerning the dismissal of Evariste Talbot, employed in the general freight office of the Intercolonial. Presented 18th March, 1913. *Mr. Lapointe* (*Kamouraska*).....*Not printed*

G1 (9*u*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Railways or any department of the government, relating to the dismissal of Philip H. Ryan, an employee of the Intercolonial railway at Mulgrave, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 18th March, 1913.—*Mr. Sinclair*..*Not printed*

G1 (9*v*). Return to an Order of the House of the 3rd February, 1913, for a return showing how many postmasters and other post office employees were removed from office respectively, from the 1st of July, 1896, to the 1st of October, 1911, and the number in each province; and from the 10th of October, 1911, up to date, with the number in each province; also the number of post offices in operation in each province on the 1st July, 1896. Presented 26th March, 1913.—*Mr. Rainville*.....*Not printed.*

G1 (9*w*). Return to an Address to His Royal Highness the Governor General of the 3rd February, 1913, for a copy of all orders in council, and of all letters, telegrams, complaints, petitions and of all other documents of any kind, in the possession of the government, or of any department or official thereof, in any way relating to or concerning the dismissal of Dr. Clarence T. Campbell, post office inspector at London, Ontario. Presented 26th March, 1913.—*Mr. Ross*.....*Not printed.*

G1 (9*x*). Return to an Order of the House of the 9th December, 1912, for a return showing the number of postmasters that have been dismissed in the County of Missisquoi since 1st October, 1911, the names of the postmasters who have been appointed to succeed them, the cause of the dismissals and a copy of all complaints and correspondence with respect to the same, and of all reports of investigations where such have been held. Presented 26th March, 1913.—*Mr. Kay*.....*Not printed.*

G1 (9*y*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, regarding any change in any post office or postmastership in Bonaventure County, between 5th December, 1912, up to date. Presented 26th March, 1913.—*Mr. Marcil* (*Bonaventure*).....*Not printed.*

G1 (9*z*). Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, correspondence, orders in council, &c., relative to the dismissal of S. A. Johnson, late postmaster at Petite Rivière, Lunenburg County, N.S. Presented 26th March, 1913. *Mr. MacLean* (*Halifax*).
Not printed.

CONTENTS OF VOLUME 27—*Continued.*

61 (10*a*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of Murdock McKenzie, postmaster at Millville Boulardarie, Nova Scotia, in the riding of North Cape Breton and Victoria. Presented 26th March, 1913.—*Mr. McKenzie* ....*Not printed.*

61 (10*b*). Return to an Order of the House of the 9th December, 1912, for a copy of all documents, correspondence and telegrams relating to the dismissal of James Stewart, postmaster at Middleton, Antigonish County, and the appointment of his successor. Presented 26th March, 1913.—*Mr. Chisholm (Antigonish)*.....*Not printed*

61 (10*c*). Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, telegrams and reports relating to the dismissal of Lauchlin McNeil, postmaster at New France, County of Antigonish, and the appointment of his suc- Presented 26th March, 1913.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

61 (10*d*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of Frank Dunlop, postmaster at Groves Point, Nova Scotia, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expense of such investigation. Presented 26th March, 1913.—*Mr. McKenzie.*

Not printed.

61 (10*e*). Return to an Order of the House of the 10th December, 1912, for a copy of all letters, telegrams, complaints, petitions and other documents relating to the investigation of A. W. Salsman, postmaster at Middle Country Harbour, N.S., and to the appointment of his successor. Presented 26th March, 1913.—*Mr. Sinclair.*

Not printed.

61 (10*f*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Richard Conroy, postmaster at Cross Roads, County Harbour, Guysborough County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 26th March, 1913.—*Mr. Sinclair*.....*Not printed.*

61 (10*g*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Abner Carr, postmaster at St. Francis Harbour, Guysborough County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of expenses of such investigation. Presented 26th March, 1913.—*Mr. Sinclair*.....*Not printed.*

61 (10*h*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Parker Sangster, postmaster, Upper New Harbour, Guysborough County, NS., and of all evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 26th March, 1913.—*Mr. Sinclair*.....*Not printed.*

61 (10*i*). Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all correspondence, orders in council and all other papers or documents in any way relating to the dismissal of Alexander Marion, from the position of postmaster at Rockland, Ontario. Presented 26th March, 1913.—*Mr. Murphy* ....*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (10*j*). Return to an Order of the House of the 4th December, 1912, for a copy of the evidence taken and the report made by each commissioner appointed since 1st of November, 1911, to conduct an investigation into charges of offensive partizanship made against postmasters in the County of Russell. Presented 26th March, 1913.—*Mr. Murphy* .....*Not printed.*

61 (10*k*). Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, evidence, reports, findings and correspondence, relating to the dismissal of Mathew Boutilier, recently postmaster at Mushaboom, Halifax County, N.S. Presented 26th March, 1913.—*Mr. MacLean (Halifax)*.....*Not printed*

61 (10*l*). Return to an Order of the House of the 29th January, 1913, for a return showing the names of the postmasters in the County of Joliette, who have been dismissed from 1896 to September, 1911; their respective parishes; dates of their dismissals; the reasons alleged; whether an inquiry was made in each case; on whose recommendation in each case the dismissals were made; names of successors in each case, and on whose recommendation were they appointed. Presented 26th March, 1913.—*Mr. Guilbault.*
Not printed.

61 (10*m*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, evidence, reports, letters, correspondence, &c., relating to the dismissal of T. Doane Crowell, postmaster at Shag Harbour, Shelburne County, N.S., and the appointment of his successor. Presented 26th March, 1913.—*Mr. Law.*
Not printed

61 (10*n*). Return to an Order of the House of the 22nd January, 1913, for a return showing the postmasters who have been dismissed in the County of Vaudreuil, the dates of their appointment, the cause of their dismissal and by whom their dismissal was requested. Presented 26th March, 1913.—*Mr. Boyer*.....*Not printed.*

61 (10*o*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, letters, correspondence, &c., relating to the dismissal of Mrs. Spinney, postmistress at Upper Port La Tour, Shelburne County, N.S. Presented 26th March, 1913.—*Mr. Law*.....*Not printed.*

61 (10*p*). Return to an Order of the House of the 29th January, 1913, for a return showing the number of postmasters dismissed in the County of Rimouski since 21st September, 1911, giving their names. Presented 26th March, 1913.—*Mr. Lapointe (Kamouraska)* .....*Not printed.*

61 (10*q*). Return to an Order of the House of the 4th December, 1912, for a return showing the detail and number of dismissals from public offices by the present government to this date in the riding of Wright, giving the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, with all reports of investigations where such were held. Presented 27th March, 1913.—*Mr. Devlin*.....*Not printed*

61 (10*r*). Return to an Order of the House of the 29th January, 9113, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John R. McLennan, janitor of the public building at Inverness Town, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by Mr. H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 28th March, 1913.—*Mr. Chisholm (Inverness)*.....*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (10*s*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, and other documents relating to the dismissal of James Arbuckle, caretaker of the public buildings at Pictou, and the appointment of two successors in his stead. Presented 28th March, 1913.—*Mr. Macdonald*.....*Not printed.*

61 (10*t*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of Mary Dunlop, telegraph operator at Groves Point, Cape Breton County, Nova Scotia, in the riding of North Cape Breton and Victoria. Presented 28th March, 1913.—*Mr. McKenzie* .....*Not printed.*

61 (10*u*). Return to an Order of the House of the 4th December, 1912, for a return showing the foremen employed at the various public works in the County of Gloucester on the 21st of September, 1911, who have been dismissed since by the present administration, containing their names, reasons of dismissal, nature of the charges made against them, also a copy of all correspondence connected with the same and reports of inquiries, in cases where such inquiries have been instituted. Presented 28th March, 1913.—*Mr. Turgeon*.....*Not printed*

61 (10*v*). Return to an Order of the House of the 3rd February, 1913, for a copy of all letters, telegrams, papers and documents relative to the dismissal of Captain Lyons of the dredge *Northumberland*, and the appointment of his successor. Presented 28th March, 1913.—*Mr. Macdonald*.....*Not printed.*

61 (10*w*). Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all correspondence, orders in council and all other papers or documents in any way relating to the dismissal of James McCartin, from the position of inspector of the concrete work forming part of the contract for the construction of the The Plaza at the City of Ottawa Presented 28th March, 1913.—*Mr. Murphy* .....*Not printed.*

61 (10*x*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Robert C. Morrison, postmaster at St. Peters, Richmond County, N.S., and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation, together with a copy of all recommendations, letters, telegrams and other papers relating to the appointment of Mr. Morrison's successor. Presented 31st March, 1913.—*Mr. Kyte.* *Not printed*

61 (10*y*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams, and other documents relative to the dismissal of Richard Dugas, storm signal attendant at Alder Point, Nova Scotia, in the riding of North Cape Breton and Victoria. Presented 4th April, 1913.—*Mr. McKenzie.* *Not printed.*

61 (10*z*). Return to an Order of the House of the 20th January, 1913, for a return showing the names of all officials of the Marine and Fisheries Department who have been dismissed or removed in the County of Pictou, the reasons of the same, the evidence taken at any investigation held in regard to them, and the reports of said investigations, the names of their successors, and a copy of all letters, charges, complaints and recommendations from any person or persons in regard to the said removals or dismissals, or in regard to the appointment of their successors. Presented 4th April 1913.—*Mr. Macdonald*.....*Not printed*

CONTENTS OF VOLUME 27—*Continued.*

61 (11*a*). Return to an Order of the House of the 3rd March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of William L. Munro, lightkeeper at White Head, Guysborough County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 4th April, 1913.—*Mr. Sinclair*.....*Not printed.*

61 (11*b*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, correspondence, reports and documents touching the dismissals of Alexander R. McAdam as fishery officer for the County of Antigonish, N.S., and the appointment of his successor. Presented 4th April, 1913.—*Mr. Chisholm (Antigonish).* *Not printed.*

61 (11*c*). Return to an Order of the House of the 19th February, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Marine and Fisheries Department, or any department of the government, relating to the dismissal of Stephen C. Richard, lightkeeper at Charlos Cove, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 4th April, 1913—*Mr. Sinclair*.....*Not printed.*

61 (11*d*). Supplementary to an Order of the House of the 7th February, 1912, for a return showing for each department of the government the names, post office addresses, offices, employment, and salaries of all persons employed either in the inside or outside service thereof, and of such persons not in the Civil Service, employed by the government in any department, on the tenth day of October, 1911, who have been removed from office or employment by dismissal; specifying in each case the manner of and grounds of such dismissals and the length of notice given to the persons removed, and also indicating in each case whether an inquiry was or was not held prior to such dismissal. Presented 7th April, 1913. *Mr. Kyte*.....*Not printed.*

61 (11*e*). Return to an Order of the House of the 7th December, 1912, for a return showing the public officers removed by the present government in the district of Lotbinière, with the names and duties of such persons, the reasons of their dismissal, the nature of the complaints made against them, also a copy of all correspondence relating thereto and reports of inquiries in the cases where such inquiries have been held. Presented 9th April, 1913.—*Mr. Fortier*.....*Not printed*

61 (11*f*). Return to an Order of the House of the 29th January, 1913, for a copy of all complaints and charges made against Miss Gertie Lewis, as postmistress at Main-a-dieu, Cape Breton South, N.S., and of all letters, telegrams and correspondence relating in any way to her dismissal and the appointment of a successor. Presented 9th April, 1913. *Mr. Carroll*.....*Not printed.*

61 (11*g*). Return to an Order of the House of the 11th December, 1912, for a copy of all correspondence, letters, telegrams and other documents relating to the dismissal of John Taylor, late postmaster at Carnduff, Sask., and of all reports of investigation held, &c. Presented 9th April, 1913. *Mr. Turriff*.....*Not printed.*

61 (11*h*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Frederick Mitchell, from the position of postmaster at Dominion, Cape Breton South, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 9th April, 1913.—*Mr. Carroll.* *Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (11*i*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, letters, telegrams and other correspondence relating to the dismissal of Thomas J. Seare, postmaster at Lochaber, N.S., and the appointment of his successor; of the evidence taken, and of the report thereon made by Commissioner Duchemin, on the charges, if any, made against the dismissed postmaster. Presented 9th April, 1913.—*Mr. Chisholm (Antigonish)*.. .. ..*Not printed.*

61 (11*j*). Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, letters, telegrams, papers and other documents in connection with the dismissal of the postmaster at Alsask, Saskatchewan. Presented 9th April, 1913.—*Mr. Knowles*..... ....*Not printed*

61 (11*k*). Return to an Order of the House of the 3rd March, 1913, for a copy of all letters, telegrams, instructions and other papers and documents in the possession of the Department of Marine and Fisheries, or any officer thereof, relating to the dismissal or appointment of fishery guardians or fishery officers, in the County of Guysborough, N.S., bearing date since the 10th day of October, 1911. Presented 9th April, 1913.—*Mr. Sinclair*..... .....*Not printed*

61 (11*l*). Return to an Order of the House of the 11th December, 1912, for a copy of all complaints and charges made against John R. Morrison, postmaster at Oban, Richmond County, N.S., and of all letters, telegrams and correspondence relating in any way to his dismissal, and the appointment of a successor. Presented 14th April, 1913.—*Mr. Kyte*..... ....*Not printed.*

61 (11*m*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of A. G. McDonald, postmaster of North East Margaree, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 14th April, 1913.—*Mr. Chisholm (Inverness)*..*Not printed.*

61 (11*n*). Return to an Order of the House of the 9th December, 1912, for a return showing in detail the number of dismissals from public office by the present government to this date, in the constituency of Qu'Appelle, with the names of the dismissed officers, and the reason for their dismissal, the complaints against such officials and a copy of all correspondence, petitions, papers and documents with respect to the same, and of all notes of evidence and reports of investigations in cases where they have taken place. Presented 14th April, 1913.—*Mr. Thomson (Qu'Appelle)*.....*Not printed*

61 (11*o*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Marine and Fisheries or any department of the government, relating to the dismissal of David Reid, fishery officer at Port Hilford, N.S., and if there was an investigation, the names of the witnesses examined, a copy of the evidence, and a detailed statement of the expenses of each investigation. Presented 15th April, 1913.—*Mr. Sinclair*.....*Not printed.*

61 (11*p*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Robert Musgrave, postmaster at North Sydney, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 15th April, 1913.—*Mr. McKenzie*.....*Not printed*

CONTENTS OF VOLUME 27—*Continued.*

61 (11*q*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of A. D. Archibald, postmaster at Glenelg, Guysborough County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 15th April, 1913. *Mr. Chisholm (Inverness)*.....*Not printed*

61 (11*r*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Leon N. Poirier, postmaster at Descouse, Richmond County, N.S., and of the evidence taken and of the reports of investigation held by H. P. Duchemin in regard to the same and a detailed statement of the expenss of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 15th April, 1913.—*Mr. Kyte*.....*Not printed.*

61 (11*s*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Norman McAskill, postmaster at Framboise, Richmond County, N.S., and of the evidence taken and of the report of investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 15th April, 1913.—*Mr. Kyte*.....*Not printed.*

61 (11*t*). Return to an Order of the House of the 11th December, 1912, for a copy of all papers, documents and correspondence relating to the dismissal of A. T. Doucet, postmaster and collector of customs at Salmon River, Digby County, N.S. Presented 15th April, 1913.—*Mr. Maclean (Halifax)*.. .. ..*Not printed.*

61 (11*u*). Return to an Order of the House of the 29th January, 1913, for a copy of all complaints and charges made against Mrs. Annie Gallivan, as postmistress at Whitney Pier, Cape Breton South, Nova Scotia, and of all letters, telegrams and correspondence relating in any way to her dismissal and the appointment of a successor. Presented 15th April, 1913.—*Mr. Carroll*.....*Not printed.*

61 (11*v*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Wm. J. Paquet, postmaster at Souris, P.E.I. Presented 15th April, 1913. —*Mr. Hughes (Kings, P.E.I.)*.. .. ..*Not printed.*

61 (11*w*). Return to an Order of the House of the 27th January, 1913, for a copy of all documents, correspondence, petitions and recommendations, &c., relating to the dismissal of the postmaster at St. Anaclet, County of Rimouski, during the year 1912, and of the appointment of his successor. Presented 15th April, 1913.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed*

61 (11*x*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of George Gunn, postmaster at French Village, Prince Edward Island. Presented 15th April, 1913.—*Mr. Hughes (Kings, P.E.I.)*.. .. ..*Not printed.*

61 (11*y*). Return to an Order of the House of the 4th December, 1912, for a return showing the detail and number of dismissals from public offices by the present government to this date in the riding of Mackenzie, together with the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, and of all reports of investigation, where any such were held. Presented 15th April, 1913. *Mr. Cash*..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (11*z*). Return to an Order of the House of the 7th April, 1913, for a copy of all charges investigated by Commissioner W. J. Code, and also of the evidence taken and the report made by the said commissioner. Presented 16th April, 1913.—*Mr. Murphy.*
Not printed.

61 (12*a*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of D. F. McLean, fishery overseer at Port Hood, Inverness County, N.S., and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 16th April, 1913.—*Mr. Chisholm (Inverness)*.....*Not printed*

61 (12*b*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of J. Scott Nelson, postmaster at Louisdale, Richmond County, N.S., and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same, and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 16th April, 1913. —*Mr. Kyte*.....*Not printed*

61 (12*c*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Joseph McMullen, from the post office at Bridgeport, Cape Breton South, Nova Scotia, and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 16th April, 1913.—*Mr. Carroll*....*Not printed.*

61 (12*d*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Frederick A. Martell, postmaster at L'Ardoise, Richmond County, N.S., and of the evidence taken and of the reports of investigation held by H. P. Duchemin, in regard to the same, and a detailed statement of the expenses of such investigation; and a copy of all papers relating to the appointment of his successor. Presented 16th April, 1913.—*Mr. Kyte*.....*Not printed.*

61 (12*e*). Return to an Order of the House of the 11th December, 1912, for a copy of all representations, statements and complaints as to political activity made against John A. Macdonald, postmaster at McArras Brook, Antigonish County, and of all correspondence relating to the charges made against him and of the report of Commissioner Duchemin on said charges. Presented 16th April, 1913.—*Mr. Chisholm (Antigonish)*.....*Not printed*

61 (12*f*). Return to an Address to His Royal Highness the Governor General of the 7th December, 1911, for a copy of all papers, correspondence and orders in council in connection with and relating to the dismissal from office of public officials from each of the departments of government since the 1st day of October last past, including both Inside and Outside Service. Presented 18th April, 1913.—*Mr. Carvell*.....*Not printed.*

61 (12*g*). Return to an Address to His Royal Highness the Governor General of the 3rd March, 1913, for a copy of all papers, documents, correspondence, evidence, order in council, &c., relative to the dismissal of Edward Doucett, sub-collector of customs, Digby County, N.S. Presented 21st April, 1913.—*Mr. McLean (Halifax)*.
Not printed.

61 (12*h*). Return to an Address to His Royal Highness the Governor General of the 3rd March, 1913, for a copy of all papers, documents, correspondence, evidence, orders in council, &c., relative to the dismissal of Mr. LeBlanc, sub-collector of customs, Church Point, Digby County, N.S. Presented 21st April, 1913.—*Mr. McLean (Halifax)*.
Not printed

CONTENTS OF VOLUME 27—*Continued.*

G1 (12*i*). Return to an Order of the House of the 19th March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John C. Bourinot, chief customs officer at Port Hawkesbury, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by Mr. H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 21st April, 1913.—*Mr. Chisholm (Inverness).*
Not printed.

G1 (12*j*). Return to an Order of the House of the 31st March, 1913, for a copy of all charges, evidence, correspondence, letters and telegrams in the Department of Railways and Canals since the 21st day of September, 1911, relating to the dismissal of Alexander E. Morrison, Point Tupper, N.S., from the service of the Intercolonial railway, and of all recommendations for the appointment of his successor. Presented 21st April, 1913.—*Mr. Kyte*.. .. .. .

CONTENTS OF VOLUME 27—*Continued.*

61 (12*q*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of D. McLachlin, postmaster at Marble Mountain, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 25th April, 1913.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

61 (12*r*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Abram LeBlanc, postmaster at West Arichat, Richmond County, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same and a detailed statement of the expenses of such investigation, and a copy of all papers relating to the appointment of his successor. Presented 25th April, 1913.—*Mr. Kyte*..... .....*Not printed.*

61 (12*s*). Return to an Order of the House of the 11th December, 1912, for a copy of all correspondence, letters, telegrams and other documents relating to the dismissal of Charles J. Lafford, postmaster at Grand Grove, Richmond County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin in regard to the same; also a detailed statement of the expenses of such investigation. Presented 25th April, 1913.—*Mr. Kyte*..... .....*Not printed*

61 (12*t*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of W. S. Lawrence, postmaster at Margrave Harbour, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 25th April, 1913.—*Mr Chisholm (Inverness)*.. .. ..*Not printed.*

61 (12*u*). Return to an Order of the House of the 11th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John K. McDonald, postmaster at Whycocomagh, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 25th April, 1913.—*Mr. Chisholm (Inverness)*.....*Not printed*

61 (12*v*). Return to an Order of the House of the 31st March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Captain P. J. Wilcox, from the customs office at Louisburg, Cape Breton South, Nova Scotia, and of evidence taken and reports of investigations held by H. P. Duchemin, in regard to the same. Presented 29th April, 1913.—*Mr. Carroll.*

Not printed

61 (12*w*). Return to an Order of the House of the 31st March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of M. J. McKennon, from the customs office at Glace Bay, Cape Breton South, Nova Scotia, and of evidence taken and reports of investigation held by H. P. Duchemin, in regard to the same. Presented 29th April, 1913.—*Mr. Carvell*.....*Not printed*

61 (12*x*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Captain John Arsenault, telegraph line repairer at Alder Point, Cape Breton, in the riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented 29th April, 1913.—*Mr. McKenzie.*

Not printed.

CONTENTS OF VOLUME 27—*Continued.*

G1 (12*y*). Return to an Order of the House of the 9th December, 1912, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Mrs. John Arsenault, telegraph operator at Alder Point, N.S., in the riding of North Cape Breton and Victoria. Presented 2nd May, 1913.—*Mr. McKenzie.*
Not printed

G1 (12*z*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Railways and Canals or any department of the government, relating to the dismissal of A. J. Wilkinson, at Mulgrave, N.S. and if there was an investigation, the names of all witnesses examined and a detailed statement of the expenses of such investigation. Presented 2nd May, 1913. *Mr. Sinclair*.....*Not printed.*

G1 (13*a*). Charges made against Mr. H. A. Bayfield, superintendent of dredging, British Columbia.—(*Senate*).. .. ..*Not printed.*

G1 (13*b*). Return to an Order of the House of the 31st March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of H. G. McKay, lighthouse keeper at Bird Island, Big Bras D'or, North Cape Breton and Victoria, and of the evidence taken, and of reports of the investigation held by H. P. Duchemin, in regard to the same, with a detailed statement of expenses of such investigation. Presented 5th May, 1913.—*Mr. McKenzie*.....*Not printed.*

G1 (13*c*). Return to an Order of the House of the 10th March, 1913, for a copy of all reports, charges, and correspondence in the office of the Department of Marine and Fisheries relating to charges of political partizanship against Michael O'Brien, lightkeeper at Bear Island, Richmond County, N.S., and of the instructions issued to H. P. Duchemin, commissioner, to investigate the same together with the Commissioner's report and finding thereon, and his expenses of holding such investigations. Presented 7th May, 1913.—*Mr. Kyte*.....*Not printed.*

G1 (13*d*). Return to an Order of the House of the 17th February, 1913, for a copy of all correspondence, letters, telegrams, reports, recommendations and other documents bearing on or having relation to the dismissal of J. H. Leduc, as medical port officer of the port of Three Rivers, P.Q. Presented 7th May, 1913.—*Mr. Burcau*...*Not printed.*

G1 (13*e*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Patrick Shea, postmaster at Tompkinsville, Guysborough County, N.S. Presented 7th May, 1913.—*Mr. Sinclair*.....*Not printed.*

G1 (13*f*). Return to an Order of the House of the 29th January, 1913, for a copy of all complaints and charges made against Elias Rawding, postmaster at Clementsport Annapolis County, N.S., and of all letters, petitions, telegrams, and other correspondence relating in any way to his dismissal and the appointment of a successor. Presented 7th May, 1913.—*Mr. Sinclair*.....*Not printed.*

G1 (13*g*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Charles McLean, postmaster at Strathlorne, Inverness County, Nova Scotia Presented 7th May, 1913.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

G1 (13*h*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Angus R. McDonald, postmaster at Broad Cove Chapel, Inverness County, Nova Scotia. Presented 7th May, 1913.—*Mr. Chisholm (Inverness)*.. ..*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

61 (13*i*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of John McPhail, postmaster at Scotsville, Inverness County, Nova Scotia. Presented 7th May, 1913.—*Mr. Chisholm (Inverness)*.....*Not printed.*

61 (13*j*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, complaints, petitions or other documents of any kind received by the government, or any member or official thereof, relating to the conduct of J. Morgan, one time postmaster of the village of Ailsa Craig, Ontario, as such, and relating to an investigation into said conduct. Presented 7th May, 1913.—*Mr. Ross.*
Not printed.

61 (13*k*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Roderick McLean, postmaster at Kenlock, Inverness County, Nova Scotia. Presented 8th May, 1913.—*Mr. Chisholm (Inverness)*.....*Not printed*

61 (13*l*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Allan Gillis, postmaster at Gillisdale, South West Margaree, Inverness County, Nova Scotia. Presented 8th May, 1913.—*Mr. Chisholm (Inverness)*.
Not printed.

61 (13*m*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of David Shaw, postmaster at Marsh Brook, North East Margaree, Inverness County, Nova Scotia. Presented 8th May, 1913.—*Mr. Chisholm (Inverness)*.
Not printed

61 (13*n*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers concerning the investigation and dismissal of Helen Joubert, postmistress at Sayabec, Quebec. Presented 8th May, 1913.—*Mr. Lemieux*.....*Not printed.*

61 (13*o*). Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, letters, and telegrams between the Honourable Postmaster General or the Post Office Department, and any person or persons, relative to the dismissal or the request therefor of D. A. Redmond, until recently postmaster at Brinston, Ontario. Presented 8th May, 1913.—*Mr. Graham*.....*Not printed.*

61 (13*p*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Dan. McEachern, postmaster at McEachern's Mills, Broad Cove Chapel, Inverness County, Nova Scotia. Presented 8th May, 1913.—*Mr. Chisholm (Inverness)*.
Not printed.

61 (13*q*). Return to an Order of the House of the 3rd February, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Daniel Dunlop, postmaster at New Campbellton, riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of the investigation held by H. P. Duchemin, in regard to same, with a detailed statement of expense of such investigation. Presented 8th May, 1913.—*Mr. McKenzie*.....*Not printed.*

61 (13*r*). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of Arthur Armstrong, postmaster at Greenfield, Carleton County, N.B. Presented 8th May, 1913.—*Mr. Carvell*.....*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

G1 (13*s*). Return to an Order of the House of the 3rd February, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Alex. Matheson, postmaster at Boulardarie Centre, north riding Cape Breton and Victoria. Presented 8th May, 1913.—*Mr. McKenzie*.....*Not printed.*

G1 (13*t*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Arthur Talbot, late postmaster at Robertsville, County of Megantic, Province of Quebec. Presented 8th May, 1913.—*Mr. Pacaud*.....*Not printed.*

G1 (13*u*). Dismissal of N. C. Lyster, late postmaster at Lloydminster, Sask. (*Senate*). *Not printed.*

G1 (13*v*). Return to an Order of the House of the 2nd April, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Mrs. Maggie Cameron, postmistress at Achosnach, Inverness County, Nova Scotia. Presented 9th May, 1913.—*Mr. Chisholm (Inverness)*.. .. .. ..*Not printed.*

G1 (13*w*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of David Fraser, postmaster at North East Margaree, Inverness County, Nova Scotia. Presented 9th May, 1913.—*Mr. Chisholm (Inverness)*.. .. .. ..*Not printed.*

G1 (13*x*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal and retention of W. Stayley Porter, postmaster, Port Maitland, Yarmouth County, N.S., and of the evidence taken and report of investigation held by Charles Lane, in regard to the same; also a detailed statement of expenses of such investigation. Presented 9th May, 1913.—*Mr. Law*.....*Not printed*

G1 (13*y*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, telegrams and other documents relating to the dismissal of Alex. McQueen, postmaster at Kowstoke, Inverness County, Nova Scotia, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to the same; also a detailed statement of the expenses of such investigation. Presented 9th May, 1913.—*Mr. Chisholm (Inverness)* .. ..*Not printed.*

G1 (13*z*). Return to an Order of the House of the 3rd February, 1913, for a return showing the number of employees of the Department of Public Works who have been dismissed in the County of Berthier since the 21st September, 1911, giving the names of the said employees; if an inquiry was held in each case; on whose recommendation, in each case, these dismissals were made; the names of those appointed successors to these persons and on whose recommendation. Presented 12th May, 1913.—*Mr. Beland* *Not printed.*

G1 (14*a*). Return to an Order of the House of the 10th February, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents in connection with the dismissal and retention of Jesse L. Morton, postmaster at Lower Argyle, N.S., and of the evidence taken and report of the investigation held by Mr. Lane, in regard to the same also a detailed statement of the expenses of such investigation. Presented 20th May, 1913.—*Mr. Law*.....*Not printed*

G1 (14*b*) Return to an Order of the House of the 10th February, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents in connection with the dismissal of Mrs. M. C. Gaudet, postmistress at West Pubnico, Yarmouth County, N.S., and of the evidence taken and report of the investigation held by Mr. Lane, in regard to same, and also a detailed statement of the expenses of such investigation Presented 20th May, 1913.—*Mr. Law*.....*Not printed.*

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G1 (14c). Return to an Order of the House of the 28th April, 1913, for a copy of all charges, correspondence, telegrams, and other documents relative to the dismissal of John P. McKinnon, section foreman on the Intercolonial railway at Shubenacadie, in the riding of North Cape Breton and Victoria, N.S. Presented 20th May, 1913.—*Mr. McKenzie*.....*Not printed.*

G1 (14d). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of Mary A. Bohan, as postmistress at Bath, Carleton County, N.B. Presented 21st May, 1913.—*Mr. Carvell*.....*Not printed.*

G1 (14e). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of Elward Lafferty, postmaster at Benton, Carleton County, N.B. Presented 21st May, 1913.—*Mr. Carvell*.....*Not printed.*

G1 (14f). Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, telegrams, evidence and other documents regarding the dismissal of Dennis McGaffigan, postmaster at Florenceville, Carleton County, N.B. Presented 21st May, 1913.—*Mr. Carvell*.....*Not printed.*

G1 (14g). Return to an Order of the House of the 27th January, 1913, for a copy of all correspondence and documents bearing upon any change made or asked for in the employees of the Department of Marine and Fisheries in the County of Bonaventure between 5th December, 1912, up to date. Presented 27th May, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

G1 (14h). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of J. A. McKenzie, postmaster at Ashfield, Inverness County, N.S. Presented 2nd June, 1913.—*Mr. Chisholm (Inverness)*.....*Not printed.*

G1 (14i). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, reports and other papers and documents in the possession of the Post Office Department, or any department of the government, relating to the dismissal of James Bowles, postmaster at Alder River, N.S., and if there was an investigation, the names of all the witnesses examined, a copy of the evidence, and a detailed statement of the expense of such investigation. Presented 2nd June, 1913.—*Mr. Sinclair*.....*Not printed.*

G1 (14j). Return to an Order of the House of the 21st April, 1913, for a copy of all correspondence, complaints, reports, recommendations, petitions, certificates and other documents relating to the dismissal of Mr. Edmund Lacroix, as postmaster of the Parish of St. Joseph du Lac, County of Two Mountains, and the appointment of Rodrique Larocque, of the same place as postmaster. Presented 2nd June, 1913.—*Mr. Ethier*.....*Not printed*

G1 (14k). Return to an Order of the House of the 26th May, 1913, for a copy of all papers, letters, documents, reports and inquiry, relating to the lighthouse keeper of the Parish of Repentigny, County of L'Assomption. Presented 3rd June, 1913.—Mr. *Seguin*.....*Not printed.*

G1 (14l). Return to an Order of the House of the 16th April, 1913, for a copy of all papers, documents, evidence, reports, &c., relating to the dismissal of B. C. Kanock, late shipping master at Lunenburg, N.S. Presented 4th June, 1913.—*Mr. McLean (Halifax)*. *Not printed.*

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61 (14*m*). Return to an Order of the House of the 3rd March, 1913, for a copy of all complaints, accusations, correspondence, petitions and telegrams, respecting the dismissal of Ulric Thibaudeau, agent for pilots at Quebec, and of all documents respecting the appointment of his successor, such as petitions, letters of recommendation, &c., and of the evidence and report made after the inquiry held by the inquiring commissioner; and also a detailed statement of the expenses caused by this inquiry. Presented 4th June, 1913.—*Mr. Delisle*.....*Not printed.*

61 (14*n*). Supplementary return to an Order of the House of the 20th January, 1913, for a return showing the names of all officials of the Marine and Fisheries Department who have been dismissed or removed in the County of Pictou, the reasons of the same, the evidence taken at any investigation held in regard to them, and the reports of said investigations, the names of their successors, and a copy of all letters, charges, complaints and recommendations from any person or persons in regard to the said removals or dismissals, or in regard to the appointment of their successors. Presented 4th June, 1913.—*Mr. Macdonald*.....*Not printed.*

61 (14*o*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, or any department of the government relating to the dismissal of Captain Freeman Myers, postmaster at Cole Harbour, Guysborough County, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 4th June, 1913.—*Mr. S[illegible]lair.*

Not printed

61 (14*p*). Return to an Order of the House of the 4th December, 1912, for a return showing all public officers removed by the present government in the district of St. James, Montreal, together with the names and duties of such persons, the reasons of their dismissal, the nature of the complaints brought against them, and a copy of all correspondence relating thereto, and of reports of inquiries in the cases where such have been held. Presented 4th June, 1913.—*Mr. Lapointe (Montreal)*.....*Not printed*

61 (14*q*). Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a return showing all the employees of the Dominion government in the constituency of Edmonton, dismissed between 10th of October, 1911, and 21st of November, 1912, the salary being paid to such employee at the time of his dismissal, together with a copy of all correspondence, recommendations to council, orders in council, and all other papers or documents in any way connected with such dismissal. Presented 4th June, 1913.—*Mr. Oliver*.....*Not printed.*

61 (14*r*). Return to an Order of the House of the 4th December, 1912, for a return showing the names of all officials in the district of Sunbury and Queens, who have been dismissed or removed from office since September, 1911, the reason for such dismissal or removal, the evidence taken at any investigation held in regard to them, the reports upon such investigations, the name of any successor appointed in place of dismissed officials, and a copy of all letters, charges, complaints and recommendations in regard to the said removals or dismissals, or in regard to the appointment of their successors. Presented 4th June, 1913. *Mr. McLean (Sunbury)*.....*Not printed.*

61 (14*s*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and document in the possession of the Department of Marine and Fisheries, or any department of the government relating to the dismissal of Levi Munroe, harbour master at

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White Head, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 4th June, 1913.—*Mr. Sinclair*.....*Not printed.*

61 (14*t*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, or any department of the government, relating to the dismissal of Stanford Langley, postmaster at Isaac Harbour North, N.S., and if there was an investigation the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 5th June, 1913.—*Mr. Sinclair*.....*Not printed.*

61 (14*u*). Return to an Order of the House of the 24th February, 1913, for a copy of all letters, telegrams, correspondence, charges, evidence, reports, and other documents relating to the dismissal of Hugh R. McAdam as postmaster at Arisaig, N.S., and the appointment of Reverend Daniel L. Macdonald as his successor. Presented 5th June, 1913.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

61 (14*v*). Return to an Order of the House of the 29th January, 1913, for a copy, of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, or any department of the government, relating to the proposed dismissal of J. J. McNeil, at Grant's Lake, N.S., and if there was an investigation, the names of the witnesses examined and a detailed statement of the expenses of such investigation. Presented 5th June, 1913.—*Mr. Sinclair*.....*Not printed*

61 (14*w*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Railways and Canals, or any department of the government, relating to the dismissal of Alex. McInnis, car inspector of the Intercolonial railway at Mulgrave, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented 6th June, 1913.—*Mr. Sinclair*...*Not printed.*

61 (14*x*). Return to an Order of the House of the 28th April, 1913, for a copy of all charges, correspondence, telegrams, and other documents relative to the dismissal of Archibald McDonald, bridge tender on the Intercolonial railway at Grand Narrows, Iona, riding of North Cape Breton and Victoria, N.S. Presented 6th June, 1913.—*Mr. McKenzie*.....*Not printed.*

61 (14*y*). Names of all officials dismissed in Shelburne and Queens from 1st December, 1896. —(*Senate*).....*Not printed.*

62. Return to an Order of the House of the 4th December, 1912, for a return showing the number of all contracts cancelled in the County of Bonaventure since the 1st of October, 1911; the names of the contractors, the prices paid to them, the reasons for the cancellation in each case; and a copy of any investigations and reports had into the causes of such cancellations, the names of the new contractors and the prices paid to them in each case. Presented 14th January, 1913.—*Mr. Marcil (Bonaventure)*. *Not printed.*

62*a*. Return to an Order of the House of the 5th December, 1912, for a return showing the number of rural mail delivery routes that have been established in Canada since the 1st January, 1912, in each province and county, respectively. Presented 14th January, 1913.—*Mr. Lemieux*.....*Not printed.*

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62*b*. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, letters, telegrams, complaints and other documents relating to the cancelling of the contract for conveying His Majesty's mails, entered into on the 1st day of January, 1912, between the Honourable Postmaster General and Mr. J. C. Beeman, of Guthrie, County of Missisquoi; together with the reason for the cancellation of this contract, the price paid to Mr. Beeman, the name of the present contractor and the price paid to him. Presented by Hon. Mr. Pelletier.—*Mr. Kay*.....*Not printed.*

62*c*. Return to an Order of the House of the 11th March, 1912, for a copy of all letters, requests, memorandums, tenders and other documents in the possession of the Post Office Department relating to the calling for tenders and the granting of the contract now in force for the carrying of the mail between Sorel and Ste. Victoire, County of Richelieu. Presented 20th January, 1913.—*Mr. Cardin*.....*Not printed.*

62*d*. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, letters, telegrams, tenders, bonds, agreements, contracts and other documents in the possession of the Post Office Department relating to the letting of the contract for carrying the mails between Heatherton and Guysborough, in the year 1912; and also relating to any temporary agreement entered into prior to the date of letting such contract. Presented 21st January, 1913.—*Mr. Sinclair*.....*Not printed*

62*e*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters and other documents relating to the establishment of a rural mail service between Saltsprings and West River Station, in the County of Pictou, in the year 1912. Presented 17th February, 1913.—*Mr. Macdonald*.....*Not printed.*

62*f*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, and other documents relating to the establishment of a rural mail delivery service between Merigonish Station, County of Pictou, and Arisaig, in the County of Antigonish, in the year 1912. Presented 17th February, 1913.—*Mr. Macdonald.*
Not printed

62*g*. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, letters, telegrams and reports regarding the termination of H. D. Becoste's contract for carrying the mails between Linwood Station and Linwood post office and the making of a new contract with D. Delorey, from the 1st January, 1913. Presented 28th February, 1913.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

62*h*. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, complaints, recommendations, telegrams and reports bearing on the railway mail service in Bonaventure County from October, 1911, up to date, and on the appointment and dismissal of officers in such connection, with the names, residences, salaries and duties, as well as of all documents bearing on the suspension of the railway mail service during the period mentioned, as well as a copy of all documents referring to agreements made to meet such a contingency during the coming winter. Presented 25th March, 1913. *Mr. Marcil (Bonaventure)*.....*Not printed.*

62*i*. Return to an Order of the House of the 9th December, 1912, for a copy of all tenders received and the contracts entered into for the carrying of the mails between St. Andrew and Beaulcy, County of Antigonish, and of all letters, telegrams and correspondence on file in the Post Office Department containing any recommendation or advice regarding the awarding of such contract, or in any way referring thereto. Presented 26th March, 1913. *Mr. Chisholm (Antigonish)*.....*Not printed.*

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62*j*. Return to an Order of the House of the 3rd February, 1913, for a return showing what changes, if any, have been made in the contracts for the carrying of the mails in the County of Berthier, since the 21st September, 1911; in what parishes, on what date, and for what reason; to whom have the new contracts been granted, and if a tender was asked for in each case. Presented 14th April, 1913.—*Mr. Bélanger.*
Not printed

62*k*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, bonds, reports and other papers and documents in the possession of the Post Office Department, or any department of the government, relating to the letting of the mail contract between Guysborough and Charlos Cove, County of Guysborough, N.S., during the year 1912. Presented 28th April, 1913.—*Mr. Sinclair.*
Not printed.

62*l*. Return to an Order of the House of the 14th April, 1913, showing the names of the various railway mail clerks employed, respectively, on the Montreal and Quebec divisions and the date of the appointment and residence of each. Presented 7th May, 1913.—*Mr. Bureau* .....*Not printed.*

62*m*. Return to an Order of the House of the 9th April, 1913, for a copy of the contract entered into by the Post Office Department with the Ontario Equipment Company of Ottawa relating to the purchase of locks for mail bags. Presented 7th May, 1913.—*Mr. Carvell* ....*Not printed.*

62*n*. Return to an Order of the House of the 7th April, 1913, for a copy of all correspondence, telegrams, &c., exchanged between the Honourable the Postmaster General and Dr. Faucher, of Quebec, concerning the purchase of a certain patented lock for mail bags. Presented 7th May, 1913.—*Mr. Lapointe (Kamouraska)*.. .. .. ..*Not printed.*

62*o*. Return to an Order of the House of the 7th April, 1913, for a copy of all correspondence, telegrams, &c., exchanged between the Honourable the Postmaster General and Mr. Aimé Dion, advocate of Quebec, concerning the purchase of a certain patented lock for mail bags. Presented 7th May, 1913.—*Mr. Verville*.....*Not printed.*

62*p*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, reports, bonds of indemnity, and all other papers and documents in the possession of the Post Office Department, or any department of the government, relating to the contract for carrying the mails between Linwood or some point of the Intercolonial railway, County of Antigonish, N.S., and Grosvenor, County of Guysborough, N.S. Presented 9th May, 1913.—*Mr. Sinclair*....*Not printed.*

62*q*. Return to an Order of the House of the 24th April, 1913, for a return showing the full names of the mail carriers in the County of Vaudreuil and Soulanges; between what place they perform the service; the distance between each of these places; the amount of each carrier's contract, and the amount the government paid for the carriage of the mail in these different places before September, 1911. Presented 16th May, 1913.—*Mr. Boyer*.....*Not printed.*

62*r*. Return to an Order of the House of the 7th May, 1913, for a return showing the number of post offices in Yarmouth County, Nova Scotia, not served with daily mail, giving the names and the number of times per week served. Presented 20th May, 1913.—*Mr. Law*..... .....*Not printed.*

62*s*. Return to an Address to His Excellency the Administrator of the 7th April, 1913, for a copy of all orders in council, reports of experts and contracts, in connection with

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the different purchases of rural mail delivery boxes made by the Post Office Department since 1908, until 1st January, 1912. Presented 21st May, 1913.—*Mr. Lemieux.*
Not printed.

62*t*. Return to an Order of the House of the 12th May, 1913, for a return giving the names of the post offices and of the postmasters in the Counties of Soulanges and Vaudreuil. Presented 21st May, 1913.—*Mr. Boyer*.....*Not printed.*

62*u*. Return to an Order of the House of the 5th December, 1912, for a copy of all letters, telegrams, petitions and other documents relating to the establishment of rural mail delivery routes in the County of Pictou since the 1st October, 1911, with a statement of all routes applied for, of routes established and of those refused, and the reason for their refusal. Presented 2nd June, 1913.—*Mr. Macdonald*.....*Not printed.*

62*v*. Return to an Order of the House of the 31st March, 1913, for a copy of all correspondence concerning the purchase of new locks for mail bags by the Post Office Department from the Ontario Equipment Company. Presented 4th June, 1913.—*Mr. Carvell.*
Not printed.

62*w*. Return to an Order of the House of the 17th February, 1913, for a copy of all correspondence, letters, telegrams, memoranda, tenders, bonds and all other documents relative to the contract for the carrying of the mail between the post office and Canadian Pacific Railway station at Three Rivers and vice versa, since the eleventh day of October, 1911, to date. Presented 4th June, 1913.—*Mr. Tobin*.....*Not printed.*

62*x*. Return to an Order of the House of the 21st April, 1913, for a copy of all correspondence, telegrams, complaints, affidavits, reports, recommendations, requests, certificates, contracts and other documents relating to the cancelled contract of M. E. Bougie, for carrying the mails between the post office and railway station at Bromptonville, Quebec. Presented 4th June, 1913.—*Mr. Bureau*.....*Not printed*

63. Return to an Order of the House of the 4th December, 1912, for a return showing all the new post offices opened in the County of Bonaventure, since October, 1911, up to date, and a copy of the correspondence in connection therewith, together with the names of such post offices and postmasters, and the location of such offices; and also a copy of all papers asking for such offices. Presented 14th January, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed*

64. Return to an Order of the House of the 9th December, 1912, for a copy of all petitions, correspondence, memoranda, recommendations and other papers or documents in the possession of the Department of Marine and Fisheries relating to the proposals to supply medicine or medical attendance free, or otherwise, to Canadian boat fishermen. Presented 14th January, 1913.—*Mr. Sinclair*.....*Not printed*

65. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, petitions, complaints, memoranda, reports and investigations regarding the service performed by the steamer *Canada*, owned by the Inter-Provincial Navigation Company of Fraserville, Quebec, since October, 1911, up to date, and also of all document bearing on the present contract with the Department of Trade and Commerce, or the renewal or extension thereof. Presented 14th January, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed*

66. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, telegrams, letters, &c., relating to the matter of the establishment of a lobster hatchery at Spry Bay, Halifax County, N.S. Presented 14th January, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

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67. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, telegrams, &c., between the Department of Trade and Commerce and any company, person or persons, relative to the continuance and payment of a subsidy towards a steamship service between St. John, N.B., and Bear River, N.S., for the fiscal year 1912, and performed during the fiscal year 1911. Presented 17th January 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

67*a*. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, documents, memoranda, letters, telegrams and documents bearing on a request for a subsidy for a steam service between Bonaventure, Quebec, or any other part of Bonaventure County and Bathurst, New Brunswick, or any other part of Gloucester County, New Brunswick, and between New Richmond, Quebec, and Dalhousie, New Brunswick, and between Carleton and Miguasha, Quebec, and Dalhousie, New Brunswick, or Campbellton, New Brunswick, or both, as well as a copy of all replies made for such subsidies and this since October, 1911, to date. Presented 14th January, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

67*b*. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all advertisements, tenders, contracts, orders in council memoranda, papers, letters and correspondence in any way relating to a subsidized steamship service between Canadian ports and any ports of the British West Indies, or any proposed improvement or extension of such steamship service since 1st November, 1911 to the present time. Presented 15th January, 1913.....*Not printed.*

67*c*. Return to an Order of the House of the 4th December, 1912, for a copy of all reports made by officials of the Department of Railways and Canals on the Quebec and Oriental railway, and the Atlantic, Quebec and Western railways, together with a statement of the subsidies paid such railways since October, 1911, up to date, and a copy of all correspondence in that connection. Presented 17th January, 1913.—*Mr Marcil (Bonaventure)*.....*Not printed*

67*d*. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence between the Minister of Railways or any other member of the government and any person regarding the acquisition by the government of Canada of the Quebec Oriental railway, formerly the Atlantic and Lake Superior railway, and the Atlantic, Quebec and Western railway, or both. Presented 27th January, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

67*e*. Return to an Order of the House of the 29th January, 1913, for a copy of the report made to the Minister of Railways and Canals by the party of government engineers who inspected the Quebec and Saguenay railway during December, 1912, January, 1913. Presented 27th February, 1913.—*Mr. Lemieux*.....*Not printed.*

67*f*. Return to an Order of the House of the 17th February, 1913, for a copy of all reports made by any engineers or accountants to the Minister of Railways and Canals on the usefulness of the Atlantic, Quebec and Western railway and the Quebec Oriental railway, to the Intercolonial railway as branch lines or feeders. Presented 27th February, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

67*g*. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, petitions, orders in Council, memoranda, correspondence, &c., by and between the government of Canada or any member thereof, and the government of the province of British Columbia, or any member thereof, since 1st May, 1912, relating to the subject to an increase of the provincial subsidy to the said province. Presented 16th April, 1913.—*Mr. Maclean (Halifax)*.

Printed for sessional papers.

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67*h*. Return to an Address to His Royal Highness the Governor General of the 20th January, 1913, for a copy of all documents and memorials of the government of British Columbia presenting claims for additional provincial subsidies, and of all correspondence and orders in council on the same. Presented 16th April, 1913.—*Sir Wilfrid Laurier*.....*Printed for sessional papers.*

67*i*. Copy of agreement made with the several provinces as to the expenditure of the subsidies granted under the Agricultural Aid Act, and statement showing the purposes for which said subsidies are to be expended. Presented 6th June, 1913, by Hon. Mr Burrell.....*Not printed*

68. Copies of general orders promulgated to the militia for the period between 2nd November, 1911, and 5th November, 1911. Presented by Hon. Mr. Hughes, 14th January, 1913. *Not printed.*

69. Return to an Address to His Excellency the Right Honourable Sir Charles Fitzpatrick, P.C., &c., administrator, of the 31st March, 1913, for a copy of all papers, documents, petitions, letters, telegrams, orders in council and other papers and documents in possession of the Department of Customs, relating to the duty payable on twine used for fishing purposes, and especially relating to the construction placed upon item 682 of the Customs Tariff. Presented 23rd May, 1913. *Mr. Sinclair*.....*Not printed.*

70. Return to an Order of the House of the 30th November, 1912, for a return showing:—

1. The date when the present Canadian Pure Food Act, now known as the Adulteration Act, R.S.C., was enacted.

2. What foods, beverages or drugs have standards of strength and purity under the Act been fixed, and what are the dates when such standards become operative.

3. What foods, beverages or drugs have standards of strength and purity been prepared and recommended from time to time by the chief analyst, which have not been put in force, and why were such standards not put in force.

4. How many cases of adulteration together with cases which show standards of quality below those required by the Adulteration Act, have been ascertained by the Dominion analyst since the said Act came into operation.

5. In how many of such cases did prosecutions under the Act or under the Criminal Code follow, and in how many cases were convictions secured. Presented 14th January, 1913.—*Mr. McDonnell*.....*Not printed.*

71. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, negotiations, proposals in writing and other papers and documents in the possession of the government, or any department thereof, relating to reciprocity in trade with the United States, bearing date between the 1st day of January, 1890, and the 31st day of December, 1891. Presented 14th January, 1913.—*Mr. Sinclair.* *Not printed*

72. Return to an Order of the House of the 4th December, 1912, for a copy of all letters, telegrams, &c., exchanged between the member for Bellechasse County and the Minister of Agriculture and the Postmaster General, concerning the appointment of an additional physician at the quarantine station of Grosse Ile. Presented 14th January, 1913.—*Mr. Lemieux*.....*Not printed.*

72*a*. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, documents, recommendations and reports concerning the appointment of Doctor Demminville, to the position of surgeon of the St. Vincent de Paul penitentiary, replacing Doctor A. Allaire. Presented 24th January, 1913.—*Mr. Wilson (Laval)*.....*Not printed*

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72*b*. Return to an Order of the House of the 10th December, 1912, for a copy of all letters, telegrams, correspondence and other documents relating to the appointment of Charles W. Hatfield, fishery officer on the Tusket River, Yarmouth County, N.S. Presented 27th January, 1913.—*Mr. Law*.....*Not printed.*

72*c*. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, letters, requests, telegrams and other documents relating to the appointment of Louis Nadeau as postmaster at Ste. Christine, County of Bagot. Presented 4th February, 1913.—*Mr. Marcil*.....*Not printed*

72*d*. Return to an Order of the House of the 29th January, 1913, for a copy of all orders letters, telegrams and other documents in connection with the appointment of Lt.-Col. Warburton, as administrative medical officer at the Charlottetown camp in 1912, and of all letters and telegrams asking for a change in the said appointment, and of all orders and other documents relating to his being superseded, and to the appointment of his junior, Lt.-Col. Jenkins, in his place. Presented 13th February, 1913.—*Mr. Macdonald*.....*Not printed.*

72*e*. Return to an Order of the House of the 27th January, 1913, for a copy of all documents, letters, correspondence, recommendations, reports, &c., relating to the appointment of Mr. J. Begin as manager of the experimental farm at Ste. Anne de la Pocatière. Presented 13th February, 1913.—*Mr. Lapointe (Kamouraska)*....*Not printed.*

72*f*. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence exchanged between Dr. Marcotte, M. Lavallée, M.P., the Honourable the Postmaster General and the Minister of Agriculture, concerning the appointment of an additional medical officer at Grosse Isle quarantine station. Presented 19th February, 1913.—*Mr. Lemieux*.. .. ..*Not printed.*

72*g*. Return to an Order of the House of the 3rd March, 1913, for a copy of all letters, telegrams, recommendations and other papers in connection with the appointment of John Macdonald as Inspector of Inland Revenue for the Maritime Provinces, and of all letters, telegrams, applications, recommendations and other papers received from any other person or persons relative to the applications of other persons for the position. Presented 17th March, 1913.—*Mr. Macdonald*.....*Not printed.*

72*h*. Return to an Order of the House of the 17th February, 1913, for a copy of all letters, petitions, telegrams, recommendations and other papers and documents, in the possession of the Department of Marine and Fisheries, or any department of the government, relating to the appointment of F. W. Kelley, M.D., as port physician at Bridgewater, N.S. Presented 18th March, 1913.—*Mr. Law*.....*Not printed*

72*i*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a return showing all appointments to office under the Dominion government in the constituency of Edmonton from 10th October, 1911, to 21st November, 1912, with a statement of the salaries in each case, together with a copy of all correspondence, recommendation to council, orders in council, and all other papers or documents in any way connected with such appointments. Presented 28th March, 1913.—*Mr. Oliver* .....*Not printed.*

72*j*. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, recommendations, reports, memoranda and other documents bearing on the appointment of a general foreman, or other permanent or temporary officials, of the Department of Public Works in the County of Bonaventure since October, 1911, up to date, with the names, residences, duties and salaries of such appointees. Presented 2nd May, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

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72*k*. Appointment of Mr. McCloskie as postmaster at Waukau, British Columbia.—(*Senate*) *Not printed.*

73. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a return showing all changes made in the Customs Tariff of Canada by order in council since the close of last session of parliament. Presented 11th January, 1913.....*Not printed.*

74. Return to an Order of the House of the 9th December, 1912, for a return showing the quantity and value of molasses of cane, as defined in tariff item No. 137a, imported into Canada for the fiscal year ending 31st March, 1912, from each island of the British West Indies, which are parties to the Canada-West India Trade Agreement. Presented 14th January, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

75. Letter of the Honourable F. D. Monk, M.P., to the Right Honourable the Prime Minister, resigning his position as Minister of Public Works, and the letter of the Prime Minister in acknowledgment thereof. Presented by Hon. Mr. Borden, 14th January, 1913.....*Not printed.*

75*a*. Return to an Order of the House of the 26th May, 1913, for a copy of all letters, reports, documents and all other communications relating to the appointment of Colonel Crowe as Commandant of the Royal Military College and to his resignation of said position, or to the extension of his term of service or to the termination thereof, and of all papers or letters passing between the minister and Colonel Crowe, relative to his resignation or the failure to extend his term of service. Presented 3rd June, 1913. *Mr. Macdonald*.....*Not printed*

75*b*. Return to an Order of the House of the 26th May, 1913, for a copy of all letters, reports, complaints and other communications and documents which passed between General McKenzie and the Minister of Militia or his department, previous to, and which led up to the resignation of General McKenzie; and also a copy of said resignation, and the reply of the minister thereto, and of any and all communications had with the War Office thereto, and of all other papers and documents in connection therewith. Presented 4th June, 1913.—*Mr. Macdonald*.....*Not printed.*

76. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, letters, telegrams, complaints and reports, bearing on the delay in the payment of census enumerators in the County of Bonaventure, in connection with the last census, together with the names, residences, amounts, and dates of payment. Presented 15th January, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

77. Report of departmental commission on the official statistics of Canada. Presented 15th January, 1913 .....*Printed for distribution only.*

78. Return to an Order of the House of the 18th March, 1912, for a copy of all correspondence in the possession of the Postmaster General respecting the change of name of Broderick post office in the Province of Saskatchewan, to St. Aldwyn. Presented 15th January, 1913.....*Not printed.*

78*a*. Return to an Order of the House of the 30th November, 1911, for a copy of all papers, telegrams, letters, &c., between the Postmaster General and any other person respecting the closing or removal of the present post office at Spry Bay, Halifax County. Presented 20th January, 1913. *Mr. Maclean (Halifax)*.....*Not printed.*

79. Report of the commissioner Dominion Police Force, for the year 1912. Presented by Hon. Mr. Foster, 15th January, 1913.....*Not printed.*

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80. Return to an Order of the House of the 9th December, 1912, for a copy of all correspondence, complaints, reports and all documents relating to the cancelling of lease No. 18778, consented to by the Honourable Minister of Railways and Canals, to Aurile Lebœuf, on the 12th December, 1910.—Presented 16th January, 1913.—*Mr. Papineau.*
Not printed

81. Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of all orders in council passed since 1st October, A.D. 1911, relating to the Board of Management of the Government Railways of Canada, or of any other member thereof, or in any way affecting the same, or any official of the Intercolonial Railway, as regards the duties to be performed or the powers to be exercised by the said Board or any member thereof, or by any such official, together with a copy of all recommendations, letters, applications, instructions, or other correspondence, in any manner relating thereto or having regard to the said orders in council as to the management of the Intercolonial railway. Presented 17th January, 1913.—*Mr. Emmerson*.....*Not printed*

81*a*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of a certain Order in Council issued during the current year by which certain official reports formerly made to Board of Management of the Intercolonial Railway have been ordered in future to be made to Mr. F. P. Brady. Presented 17th January, 1913.—*Mr. Sinclair*.....*Not printed.*

82. Return to an Order of the House of the 5th December, 1912, for a copy of all papers, including surveys, tenders, and every other record, or document in the possession of the Department of Railways and Canals or any other department of the government relating to the building of a line of railway from Estmere, County of Victoria, Province of Nova Scotia, to the town of Baddeck in the same county. Presented 17th January, 1913.—*Mr. McKenzie*.....*Not printed.*

83. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all documents, papers, tenders, contracts, orders in council and correspondence in connection with the supply of castings for and the purchase of scrap iron from the eastern division of the Intercolonial Railway since 1st May, 1912. Presented 17th January, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

83*a*. Return to an Order of the House of the 9th December, 1912, for a return showing the names of the employees on the dining cars of the Intercolonial Railway and the nature of their employment; and also of the employees on the Pullman cars of the Intercolonial Railway and the nature of their employment. Presented 17th January, 1913.—*Mr. Boulay*.....*Not printed.*

83*b*. Return to an Order of the House of the 9th December, 1912, for a copy of all papers documents, telegrams, letters, &c., relating to a strike of temporary employees of the Intercolonial Railway at Halifax, in August, 1912. Presented 27th January, 1913.—*Mr. Mclean (Halifax)*.....*Not printed.*

83*c*. Return to an Order of the House of the 10th December, 1912, for a copy of all evidence plans, reports, correspondence, &c., respecting an inquiry held concerning an accident on the Intercolonial Railway at St. André de Kamouraska on 7th October, 1912, caused by train No. 33, the maritime express going west. Presented 27th January, 1913.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

83*d*. Return to an Order of the House, of the 29th January, 1913, for a copy of the evidence taken at the inquiry held in the month of November, 1912, by Mr. MacDonald

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superintendent of the Intercolonial at Lévis, in reference to Alfred Laugnay, an employee of the Intercolonial at St. Charles, County of Bellechasse. Presented 27th February, 1913.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

83*e*. Return to an Order of the House of the 19th February, 1913, for a copy of all telegrams, letters, petitions, reports of engineers, plans, surveys, and other documents in the possession of the Department of Railways and Canals, and having been received since 1st January, 1912, relating to the construction of a branch line of the Intercolonial Railway into Guysborough County. Presented 18th March, 1913.—*Mr. Sinclair*.....*Not printed.*

83*f*. Return to an Order of the House of the 24th February, 1913, for a copy of all petitions, resolutions, letters, telegrams and correspondence, relating to free or reduced transportation of hay over the Intercolonial Railway for the farmers of Antigonish County, Nova Scotia, and also of the evidence taken and report made as to the shortage of hay in that and other of the eastern counties of Nova Scotia. Presented 18th March, 1913.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

83*g*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters telegrams, tenders, acceptances of tenders, cancellation of tenders and other papers and documents in the possession of the Department of Railways and Canals, or any department of the government, bearing date after 1st July, 1912, relating to the supply of ice for the use of the Intercolonial Railway at Mulgrave, N.S. Presented 18th March, 1913.—*Mr. Sinclair*.....*Not printed.*

83*h*. Return to an Order of the House of the 12th February, 1913, for a copy of all letters correspondence, petitions and other documents, on file in the Department of Railways and Canals, or in the office of the Intercolonial Railway at Moncton, relating or in any way appertaining to the new public wharf at Sackville, N.B., and the necessity of establishing in the interest of the traffic of the Intercolonial Railway, and of the shipping and trade facilities of Sackville, and of the commerce of communities adjacent thereto, rail connections between the said wharf and the main line of the said railways at Sackville station; also of all letters and other communications received by the chairman or vice-chairman of the Government Railways Managing Board, or by any official of the said railway, relating in any manner to the said subject, received by them or any of them during the years 1911, 1912 and 1913. Presented 19th March, 1913.—*Mr. Emmerson*.....*Not printed*

83*i*. Return to Order of the House of the 19th March, 1913, for a return showing who the tenderers were, and the amount of each tender for the supply of castings for the Intercolonial Railway during the present year. Presented 28th March, 1913.—*Mr. Macdonald*.....*Not printed.*

83*j*. Return to an Order of the House of the 19th March, 1913, for a return showing how many kegs of nails were purchased in 1912 for the Intercolonial Railway; the prices paid therefor in each case; whether tenders were invited in the case of each purchase and, if so, who the respective tenderers were and the prices submitted; to whom were the contracts awarded in each case. Presented 28th March, 1913.—*Mr. Murphy.*
Not printed.

83*k*. Return to an Order of the House of the 19th March, 1913, for a return showing the amounts received by the Intercolonial Railway for freight and passengers respectively for each of the twelve months of the calendar years 1910, 1911 and 1912, at the following stations:—Montreal, Halifax, St. John, Sydney, Truro, Moncton, New Glasgow

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and Amherst; also, the total receipts of the said railway for freight and passengers respectively during each of the said years. Presented 28th March, 1913.—*Mr. Rhodes.* *Not printed.*

83*l*. Return to an Order of the House of the 20th January, 1913, for a copy of all letters correspondence, telegrams, representations, requests and reports on file in the Department of Railways and Canals, or in the offices of the Intercolonial Railway at Moncton, or among the records of the Government Railways Managing Board, or in the office of the assistant chairman of the Government Railways Managing Board, relating to or in any way connected with the water supply system at Dorchester station on the Intercolonial railway, or relating to the absence of and the total failure to provide a supply of water for drinking or other purposes at that station, or in connection with the dwelling of the station agent in the Station House; and also of all correspondence, letters, requests, recommendations and reports relating to the alleged necessity of additional clerical or other help or assistance at the station. Presented 21st April, 1913.—*Mr. Emmerson*.....*Not printed.*

83*m*. Return to an Order of the House of the 12th February, 1913, for a copy of all correspondence, letters, telegrams, reports and other papers on file in the Department of Railways and Canals, or in the offices of the Intercolonial Railway at Moncton, relating to M. L. Tracy, an employee of the mechanical department of the Intercolonial during the years 1899 and 1900, and of all letters and correspondence relating to the case of the said M. L. Tracy, passing between the then Minister of Railways and Canals and any of the officials of the railway, during those years; also a copy of the letters of D. Pottinger, then general manager, the late James E. Price, then general superintendent, and the late M. Jarvis, then a divisional superintendent of said railway, relating to the same subject during the said period of 1899 and 1900. Presented 21st April, 1913.—*Mr. Emmerson*.....*Not printed.*

83*n*. Return to an Order of the House of the 3rd March, 1913, for a statement of all amounts collected by the Intercolonial Railway for freight on hay carried from Amherst and other stations on the Intercolonial, County of Cumberland, to Antigonish, N.S., and consigned to C. Edgar Whidden or C. B. Whidden & Son, in the month of January last and February instant, and by whom such freight was paid; also a copy of all way bills and bills of lading for the same. Presented 21st April, 1913. —*Mr. Chisholm* (*Antigonish*).....*Not printed.*

83*o*. Return to an Order of the House of the 3rd February, 1913, for a copy of all letters petitions, telegrams, complaints, communications, reports and other papers and documents, received since the 1st day of October, 1911, by and now in the possession of the Department of Railways and Canals, the Government Railway Managing Board or any official of the Intercolonial Railway or of the Prince Edward Island railway, relating to or in any manner appertaining to an application for, or a proposed reduction of the working hours for the Intercolonial railway employees at Moncton, or at any other point of the Intercolonial railway or the Prince Edward Island railway. Presented 21st April, 1913.—*Mr. Emmerson*.....*Not printed.*

83*p*. Return to an Order of the House of the 24th February, 1913, for a copy of all complaints, requirements, requisitions, petitions, and correspondence of all kinds made by the Sydney, N.S., Board of Trade, or by the citizens of the city of Sydney, or any of them, having reference to better and increased facilities on the Intercolonial Railway on the Sydney division. Presented 21st April, 1913.—*Mr. Carroll.* *Not printed.*

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83*q*. Return to an Order of the House of the 31st March, 1913, for a copy of all letters, papers and other documents relating to the claim for damages for the death of the young son of Thomas Hoare, who was killed at a crossing of the Intercolonial Railway in the town of Stellarton in the summer of 1912, and of all petitions, letters, and other papers asking for the placing of gates or other protection at said crossing. Presented 1st April, 1913.—*Mr. Macdonald*.....*Not printed*

83*r*. Return to an Order of the House of the 14th April, 1913, for a copy of all correspondence exchanged between the Department of Railways and Canals at Moncton and the same department at Campbellton, on the subject of the collision which occurred at St. Moise, during the month of February, 1913, between the trains of E. Smith and the regular train No. 99, omitting from it the inquiry held in the matter. Presented 29th April, 1913.—*Mr. Boulay*.....*Not printed.*

83*s* Return to an Order of the House of the 7th April, 1913, for a return showing the names, residences and occupations of all the employees of the Intercolonial Railway who have been dismissed in the County of Rimouski since the 21st September, 1911. Presented 29th April, 1913.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

83*t*. Certified copy of a report of the Privy Council of the 5th May, 1913, covering the appointment of Frederick Passmore Gutelius, as general manager of Government Railways. Presented by Hon. Mr. Cochrane, 7th May, 1913... .. .. ..*Not printed.*

83*u*. Return to an Order of the House of the 31st March, 1913, for a copy of all letters, memorials, petitions, correspondence, reports and other documents in the Department of the Postmaster General, or on file therein, relating or in any wise appertaining to the inauguration or establishing of railway mail facilities between Moncton, N.B., westward over the Intercolonial Railway towards St. John, in the morning, so as to furnish, among other things, opportunities for the transmission of newspapers and other mail matter, along said railway, to make morning connection with the railway mail facilities afforded by the railway from Salisbury, Westmorland County, N.B., running into Albert County, N.B.; and also relating to the establishment of railway mail facilities on each week day evening between Moncton eastward over the said railway by train known as number 81, running between Moncton, N.B., and Springhill Junction, Nova Scotia, thus affording the direct mail connection for newspapers and other mail matter each evening from Moncton to Shediac, Memramcook, Dorchester, Sackville, Amherst, and intermediate points east of Moncton; together with a statement showing what, if any, such railway mail facilities, either by locked bag or otherwise, were established or furnished over either of the said routes, and stating the respective dates when the same were so established or furnished generally, or in relation to any one of the newspapers published in Moncton, either in the morning or in the evening. Presented 12th May, 1913.—*Mr. Emmerson*.....*Not printed.*

83*v*. Return showing whether any contract has been made for the construction or supply of cars of any kind to the Intercolonial Railway since 1st January, 1913, and if so, to whom the contract was awarded; the number of cars, kind or class, and the price to be paid; whether any tenders were called for previous to awarding said contract, and if so, who the tenderers were, the amount of the tender in each case, and if tenders were called for by private request or public advertisement. Presented 21st May, 1913 —*Mr. Macdonald*.....*Not printed.*

83*w*. Return to an Order of the House of the 28th April, 1913, for a return showing all amounts collected by the Intercolonial Railway for freight on hay shipped from Amherst and other stations on the Intercolonial in the County of Cumberland, to Antigonish and other stations in the County of Antigonish, during the months of

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January, February and March last; the name of the consigners and of the consignees, the amount of freight paid on each shipment and by whom paid; also a copy of all way-bills and bills of lading for same. Presented 6th June, 1913.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

84. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, memoranda, orders in council, letters and correspondence, relating in any way to the closing of the Canadian Immigration Office at Boston, U.S.A., in 1911, and its subsequent re-establishment. Presented 17th January, 1913.—*Mr. McLean (Halifax)*.....*Not printed*

85. Copies of despatches dated 11th December, 1912, which have been addressed to the Governors General of the Commonwealth of Australia and the Union of South Africa and the Governors of New Zealand and Newfoundland, on the subject of representation of the self-governing Dominions on the Committee of Imperial Defence. Presented by Hon. Mr. Borden, 17th January, 1913.....*Not printed.*

86. Reports in connection with the Tides and Currents of Northumberland Strait.—(*Senate*).....*Not printed.*

87. Archives Branch, *re* transferring of from Department of Agriculture to Secretary of State.—(*Senate*).....*Not printed.*

88. Commission appointed to investigate Indian reserves of British Columbia.—(*Senate*). *Not printed.*

89. Insurance rates between Canadian Atlantic ports, and ports in the United Kingdom.—(*Senate*) .....*Printed for distribution and sessional papers.*

90. Report of departmental commission relating to official statistics of Canada.—(*Senate*). *Printed for distribution only.*

91. Copy of the Sixth Joint Report of the Commissioners for the Demarcation of the Meridian of the 141st degree of west longitude. Presented by Hon. Mr. Roche, 21st January, 1913.....*Not printed.*

92. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, petitions, memoranda, correspondence, &c., with the Government of British Columbia or any member thereof, with the fishery officers of the Marine and Fisheries Department resident in said province, with salmon canneries in said province, and with any company, person or persons, relating to the prohibition of the export of sockeye salmon from the said province of British Columbia since 15th October, 1911. Presented 20th January, 1913.—*Mr. Maclean (Halifax)*....*Not printed.*

93. Return to an Order of the House of the 20th March, 1912, for a copy of all correspondence and memoranda on the subject of cable rates, exchanged between the Canadian Post Office Department and the British Post Office Department. Presented 20th January, 1913.—*Mr. Lemieux*.....*Not printed.*

94. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, letters, &c., between the Government of Canada and the Commonwealth of Australia for the past twelve months relative to the matter of preferential tariff arrangements between the said two countries. Presented 21st January, 1913.—*Mr. Maclean (Halifax)*..*Printed for sessional papers only.*

95. Report of Mr. Olivar Asselin on an investigation of Belgian and French emigration to Canada. Presented by Hon. Mr. Roche, 21st January, 1913.
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95a. Return to an Order of the House of the 4th December, 1912, for a copy of all complaints, letters, papers, reports, and of all documents bearing on the investigation held at Port Daniel West, Quebec, into the conduct of Edward Dea, as overseer or guardian of the lobster hatchery at that place. Presented 22nd January, 1913.—*Mr. Marcil* ..... *Not printed.*

95b. Report of R. A. Pringle, Esq., K.C., in relation to the investigation of the wreck of the steamer *Mayflower*, on the 12th November, 1912. Presented by Hon. Mr. Hazen, 6th February, 1913..... *Not printed.*

95c. Return to an Address to His Royal Highness the Governor General of the 29th January, 1913, for a copy of the report of the commission appointed to investigate complaints against the United Shoe Machinery Company, together with the order in council appointing the commission, the complaints upon which the order was issued and all action, if any, taken by the government on report of commission, by order in council or otherwise. Presented 11th February, 1913.—*Sir Wilfrid Laurier.*
Not printed

95d. Return to an Order of the House of the 20th January, 1913, for a copy of all evidence, letters, telegrams and other documents in connection with the investigation into the stranding of the D. G. steamer *Earl Grey* at Toney River, County of Pictou, in the spring of 1912; of the reports of the commissioner investigating the same, and of all correspondence, telegrams and documents in connection therewith, and of any departmental action in connection therewith. Presented 18th March, 1913.—*Mr. Macdonald*
Not printed

95e. Return to an Order of the House of the 27th January, 1913, for a copy of all letters, papers, evidence and other documents in connection with the investigation into the collision between the steamship *City of Sydney* and the tug boat *Douglas H. Thomas*, in Sydney Harbour, 13th November, 1912, and of the findings and reports of the commissioner holding the investigation in regard to the same. Presented 2nd April, 1913.—*Mr. Macdonald*..... *Not printed.*

96. Report of the Second International Moral Education Congress held at the Hague, 22nd to 27th of August, 1912, and as related thereto, on moral instruction in the Canadian public schools, &c., by Mr. J. A. M. Aikins, who was appointed by the government to represent Canada at that Congress. Presented by Hon. Mr. Borden, 21st January, 1913..... *Printed for distribution only.*

97. Return to an Order of the House of the 4th December, 1912, for a copy of all pay-lists, letters, documents, letters and other papers in connection with the expenditures at Cariboo Island in the County of Pictou. Presented 21st January, 1913.—*Mr Macdonald* ..... *Not printed.*

98. Return to an Order of the House of the 22nd January, 1913, for a copy of all correspondence, letters and telegrams between the Minister of Marine and Fisheries, or any officer of his department, and J. A. Gillies, K.C., Sydney, relating to the purchase from John B. Nicholson, of a site for a salmon hatchery at Smdlope Lake, Richmond County, N.S., and also of all accounts, charges and vouchers received from the said J. A. Gillies, for services in connection therewith and the payments made to the said J. A. Gillies in respect of the same. Presented 7th February, 1913.—*Mr. Kyte.*
Not printed.

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99. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents and correspondence, between the Department of Public Works and any person or persons relating to the placing of obstructions in the waters of South West Cove, Lunenburg County, N.S. Presented 24th January, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

100. Return to an Order of the House of the 4th December, 1912, for a copy of all pay-lists, letters, documents, telegrams and other papers in connection with the expenditures at Skinner's Cove in the County of Pictou. Presented 24th January, 1913.—*Mr. Macdonald*.....*Not printed.*

101. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1912, for a copy of all correspondence between the government of Canada and the government of the Province of Ontario, with regard to the extension of the boundaries of the said province. Presented 28th January, 1913.—*Sir Wilfrid Laurier.* *Not printed.*

102. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, reports, and documents, bearing on the claim of C. R. Scoles, of New Carlisle, Quebec, to a balance of subsidy voted to the Atlantic and Lake Superior railway, since October, 1911, to date. Presented 24th January, 1913.—*Mr. Marcil.* *Not printed.*

103. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, letters, telegrams, reports and other documents concerning an alleged defalcation in the accounts of Joseph J. Melanson, clerk in the customs office at Bathurst, County of Gloucester, which caused an inquiry to be held on the 23rd of October last by the Provincial Inspector of Customs, with the name of the accuser. Presented 24th January, 1913.—*Mr. Turgeon*.....*Not printed.*

104. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, letters and telegrams in the custody of the Department of Railways and Canals, or any other department of the government, between the 1st day of September, 1874, and the 1st day of September, 1879, relating to the acquisition or expropriation of lands at St. Peters, N.S., for canal purposes, and relating to the appointment of valuators to apprise the value of such lands; the instructions to such valuators, the report or reports of such valuators, the area of lands taken, and the price paid for same; and also the amount paid each valuator for his services. Presented 27th January, 1913.—*Mr. Kyte*.....*Not printed.*

105. Return to an Order of the House of the 4th December, 1912, for a copy of all the different freight tariffs in force on the line of railway from Matapedia, Quebec, to New Carlisle, Quebec, and from New Carlisle, to Gascons, Quebec, and vice versa, and of any requests that have been received in regard to the change in the same; and also a copy of any requests, petitions, letters, or other documents complaining of the said tariffs. Presented 27th January, 1913.—*Mr. Marcil (Bonaventure).* *Not printed.*

105*a* Return to an Order of the House of the 10th December, 1912, for a copy of the different freight tariffs in force on the line of railway from Sunny Brae to Ferrona Junction, on the Intercolonial Railway, and of any requests that have been received in regard to the change in the same, and also a copy of any requests, petitions, letters or other documents complaining of said tariff. Presented 27th January, 1913. —*Mr. Sinclair*.....*Not printed.*

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106. Return to an Order of the House of the 5th December, 1912, for a copy of the original instructions, including maps, specifications, profiles, &c., furnished the engineers on the eastern division of the Transcontinental railway between Winnipeg and Quebec by the chief engineer of the Transcontinental Commission, and approved by the Grand Trunk Pacific Railway Company. Also of all instructions, including specifications and profiles, issued by the chief engineer of the Transcontinental Commission or by the chairman, since 31st October, 1911, which in any way vary, amend, or depart from the original instructions above mentioned. Also, of all correspondence between the Minister of Railways or any official of his department and the chairman of the Transcontinental Commission, or the chief engineer, concerning the departure from the original instructions, either as to the grades, curves and bridges or other permanent structures. Also a copy of all correspondence between the Minister of Railways or any member of the government and any official of the Grand Trunk Pacific Railway Company referring to change of original instructions as regards grades, curves or permanent structures on the said line between Winnipeg and Quebec; and also of all correspondence between the chairman of the Transcontinental Commission or the chief engineer and any official of the Grand Trunk Pacific Railway Company, or any member of its engineering staff, concerning the proposed change of grades, curves, or other permanent structures on the line of the Transcontinental between Winnipeg and the City of Quebec. Presented 30th January, 1913—*Mr. Graham.*
Not printed.

106*a*. Return to an Order of the House of the 7th May, 1913, for a copy of a letter, dated 24th September, 1904, written by Chief Engineer Lumsden of the Transcontinental Commission to Chairman Wade of the same body, in which the former recommended to the latter certain grades on the Transcontinental railway. Presented 15th May, 1913.—*Mr. Graham*.....*Not printed.*

107. Return to an Order of the House of the 20th January, 1913, for a copy of all papers in connection with a claim of L. A. Sauvé to certain buildings at La Pointe des Cascades, on the Soulanges canal, and of all correspondence on the same. Presented 30th January, 1913. *Sir Wilfrid Laurier*.....*Not printed.*

108. Return to an Order of the House of the 5th December, 1912, for a copy of the contract entered into between the Department of Railways and Canals and W. H. Weller for St. Peters canal improvements, and for a copy of all correspondence between the contractor or any other person, firm or corporation and the Honourable Minister of Railways and Canals relating to the dumping of material removed by the contractor. Presented 30th January, 1913.—*Mr. Kyte*.....*Not printed.*

108*a*. Return to an Order of the House of the 27th January, 1913, for a copy of all correspondence between the Department of Railways and Canals and C. D. Sargent, C.E., and between C. D. Sargent, C.E., and H. G. Stanton, Superintending Engineer of the St. Peter Canal, or between W. H. Weller, contractor for the St. Peters canal improvements, and either or all of said parties relative to work done by the contractor outside of his contract, and the specifications thereof, and also a copy of all correspondence, letters and telegrams between the Department of Railways and Canals or C. D. Sargent, C.E., and any other person, in regard to the same; and of all accounts and vouchers rendered by the contractor to the government of such work, and the payment made by the government to the contractor, specifying whether the same is paid for in full or otherwise. Presented 21st April, 1913.—*Mr. Kyte.*
Not printed.

108*b*. Return to an Order of the House of the 19th March, 1913, for a copy of the accounts of personal expenses paid to Mr. St. Amour, Superintendent of the Soulanges Canal,

CONTENTS OF VOLUME 27—*Continued.*

since he entered upon his duties.—Also return to an Order of the House of the 2nd April, 1913, for a copy of all accounts for personal expenses paid by the government to Mr. St. Amour, Superintendent of the Soulanges Canal, since the date of his appointment. Presented 29th April, 1913.—*Mr. Boyer*.....*Not printed.*

109. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, letters, telegrams, petitions and other documents received since the 1st day of January, 1912, asking that the line of railway known as the Vale Road, should be taken over by the Intercolonial Railway. Presented 30th January, 1913.—*Mr. Macdonald*.....*Not printed.*

110. Return to an Order of the House of the 27th January, 1913, for a copy of all correspondence in connection with the issuing of letters patent to the Quebec Railway, Light, Heat and Power Company, Limited, and also said letters patent. Presented 30th January, 1913.—*Mr. Lemieux*.....*Not printed.*

111. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, correspondence, &c., between the Department of Trade and Commerce and Mr. Donnelly, late Canadian Trade Commissioner in Mexico, relating to the closing of the office of such trade commissioner in Mexico. Presented 3rd February, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

112. Return called for by Section 88 of Chapter 62, Revised Statutes of Canada, requiring that the Minister of the Interior shall lay before parliament, each year, a return of liquor brought from any place out of Canada into the territories by special permission in writing of the Commissioner of the Northwest Territories. Presented by Hon. Mr. Roche, 3rd February, 1913.....*Not printed.*

113. Return to an Order of the House of the 22nd January, 1913, for a copy of all letters, telegrams and other papers and documents, relating to the resignation of Lt.-Col. W. F. Moore, 20th Regiment, Halton Rifles, and also of the resignation and the reply thereto. Presented 6th February, 1913.—*Mr. Macdonald*.....*Not printed.*

114. Return to an Order of the House of the 20th January, 1913, for a copy of all letters, papers, telegrams and other documents in connection with the strike of firemen and other men employed on the D.G.S. *Earl Grey*, in the year 1912 and 1913. Presented 11th February, 1913.—*Mr. Macdonald*.....*Not printed.*

115. Return to an Order of the House of the 27th March, 1912, for a copy of all papers, letters and telegrams relating to the applications for, or the granting of, a lease of False Cove Flats, Vancouver, B.C. Presented 11th February, 1913.—*Mr. Macdonald.* *Not printed.*

116. Return to an Order of the House of the 27th January, 1913, for a copy of all correspondence and other papers in connection with a proposed guarantee of bonds to the Quebec and Saguenay railway. Presented 11th February, 1913.—*Mr. Lemieux*.....*Not printed.*

116a. Return to an Order of the House of the 9th April, 1913, for a copy of all documents, including petitions, memorials, letters and telegrams, addressed to the government, or any of its members, urging it to take over and incorporate into the Canadian government railway system, the Quebec and Oriental Railway and the Atlantic, Quebec and Western Railway, with a copy of all the answers thereto. Presented 20th May, 1913. —*Mr. Marcil (Bonaventure)*.....*Not printed.*

CONTENTS OF VOLUME 27—*Continued.*

116b. Return to an Address to His Royal Highness the Governor General of the 11th December, 1912, for a copy of all orders in council in connection with the construction of a line of railway from St. John to Grand Falls in the Province of New Brunswick, or any portion thereof and also of all plans and profiles filed with the Department of Railways and Canals by the St. John and Quebec Railway Company, and of all correspondence between the Department of Railways and Canals or any official thereof and with the said company or the Government of the Province of New Brunswick, or any official thereof, with reference to the curves, grades or general specifications of the said railway or any portion thereof. Presented 20th May, 19.3.—*Mr. Carvell.*

Not printed

116c. Return to an Order of the House of the 28th April, 1913, for a copy of all memorials, petitions, letters, and other documents submitted to the Board of Railway Commissioners from 1st January, 1913, to date, by any party whatsoever regarding the service of the Quebec and Oriental Railway and the Atlantic, Quebec and Western Railway, as to freight, passengers and express matters, with a copy of all orders and rulings issued by such Board and of all correspondence in connection therewith. Presented 20th May, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

117. Return to an Address to His Royal Highness the Governor General of the 5th December, 1912, for a return showing the number of appeals made to the Governor in Council during the twelve months preceding 25th November, 1912, against orders of the Board of Railway Commissioners, the particulars of each appeal, and the decision rendered by the Governor in Council in each case. Presented 11th February, 1913.—*Mr. Graham*.....*Printed for sessional papers only.*

118. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1913, for a copy of all orders in council and of all correspondence relating to the extension of facilities for obtaining information useful to Canadian Trade and Commerce in connection with the British Consular Service. Presented 11th February, 1913.—*Mr. Ames*.....*Not printed.*

119. Return to an Order of the House of the 24th January, 1913, for a return showing all the employees of the different departments at Ottawa, and also in the nine provinces and territories of Canada, and other places outside of Canada, in the inside and outside service, who have left their employment since the 1st October, 1911, up to the 10th January, 1912, inclusively, with their names, Christian names, age, nationality, employment and salaries respectively; the date of their appointment; the date of their leaving; their salaries, the time of their appointment and at leaving; the reasons of their leaving; and if replaced or not; the names, Christian name, age, nationality, employment and salary of those who have replaced them; and in the case of dismissals, a list of the persons who asked for their dismissals; in the case of these replacing them, a list of the persons who recommended their successors Presented 11th February, 1913.—*Mr. Wilson (Laval)*.....*Not printed.*

119a Supplementary return to an Order of the House of the 24th January, 1912, for a return showing all the employees of the different departments at Ottawa, and also in the nine provinces and territories of Canada, and other places outside of Canada, in the inside and outside service, who have left their employment since the 1st October, 1911, up to the 10th January, 1912, inclusively, with their names, Christian names, age, nationality, employment and salaries respectively, the date of their appointment; the date of their leaving; their salaries at the time of their appointment and at leaving; the reasons of their leaving; and if replaced or not; the names, Christian name, age, nationality, employment and salary of those who have replaced them;

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and in the case of dismissals, a list of the persons who asked for their dismissals; in the case of these replacing them, a list of the persons who recommended their successors. Presented 17th March, 1913.—*Mr. Wilson (Laval)*.....*Not printed.*

120. Return to an Address to His Royal Highness the Governor General of the 5th February, 1912, for a copy of all tenders, contracts, reports and other memoranda of the engineers of the Department of Public Works, orders in council, correspondence and all other documents relating to the construction of a dam for storage purposes at the foot of Lake Timiskaming. Presented 12th February, 1913.—*Mr. Pugsley.*
Not printed.

120*a*. Return to an Order of the House of the 4th March, 1912, for a copy of all contracts, correspondence or writings whatsoever, respecting the construction of a dam in 1908 or 1909, called the Lake Timiskaming dam constructed or built over the rivers forming the inflow or the discharge of the said lake, exchanged between the Government of Canada and the contractor or contractors. Presented 12th February, 1913.—*Mr. Boulay*.....*Not printed.*

121. Return to an Order of the House of the 28th March, 1912, for a return giving a list of the subjects of the oil paintings and water colours which have become the property of the National Gallery of Canada since 1891; and the names of the artists in each case. Presented 12th February, 1913.—*Mr. Burnham*.....*Not printed.*

122. Return to an Order of the House of the 27th January, 1913, for a copy of all documents, letters, correspondence, reports, recommendations, &c., relating to the petition of Mr. Firmin Thibault, of St. Denis, County of Kamouraska, for his indemnity for having served at the time of the Fenian invasion. Presented 13th February, 1913—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

123. Return to an Order of the House of the 27th January, 1913, for a return showing what date or dates the government purchased the site for the new Dominion Rifle Range in the County of Carleton, Ontario, from whom were the several parcels of land purchased, and what price per acre was paid for each, the number of acres of land purchased, and the total amount paid therefor, if any buildings have been erected on the said lands by the government, and the cost thereof, the amounts paid by the government for commissions, fees, agency charges, and legal expenses, and to whom in connection with said purchase, the amount of money expended by the Government on the said range for all purposes, from the date of the original purchase of the land up to 23rd January, 1913, and any sums remaining to be paid in any way connected with the purchase of the said range, to whom and the respective amounts thereof, the distance from the post office in the City of Ottawa to the said range, if any line of electric or other railway runs from the City of Ottawa to the said range, and what means of transportation will be provided for riflemen going to and returning from the said range. Presented 13th February, 1913—*Mr. Wilson (Laval)*.....*Not printed.*

124. Return to an Address to His Royal Highness the Governor General of the 10th February, 1913, for a copy of the memorial presented to the Government during the session of 1911-12, by a delegation from the Government of Prince Edward Island asking for an increased provincial subsidy, a copy of which memorial was laid on the Table of the House by the Finance Minister last session of Parliament, but is not now apparently on the files of the House Presented 17th February, 1913.—*Mr. Hughes (Kings, P.E.I.)*.....*Printed for sessional papers only.*

125. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, letters, telegrams and correspondence between the Government of Canada or any member thereof, since 1st November, 1911, to the pre-

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sent time, with any corporation, company, party or parties, in any way relating to the Customs Tariff upon cement or to the temporary reduction made of the Customs Tariff upon cement; also for a copy of all letters and correspondence by and between members of the Government of Canada during the same period relating to the same subject, and of all papers, documents, memoranda and orders in council relative to the reduction of the Customs Tariff upon cement made by order in council since the close of the last session of parliament. Presented 17th February, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

125a. Return to an Address to His Royal Highness the Governor General of the 20th January, 1913, for a copy of all petitions since the 1st of October, 1911, addressed to the Governor General in Council or to any member of the government, asking for a remission and the adjustment of duty on cement, of all letters to the ministers individually on the same, of all correspondence and of all orders in council. Presented 21st February, 1913. *Sir Wilfrid Laurier*.....*Not printed.*

125b. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all papers, documents, petitions, orders in council, letters and telegrams in any department of the government of Canada, or that passed between the Department of Customs and the Department of Justice or any solicitor, counsel, association, company or individual, during the past twelve months, respecting the imposition of tariff duties upon imported lumber dressed on one side and sized, or respecting the interpretation of tariff item No. 504, together with a printed copy of any stated case, appeal, factum or argument used before the Exchequer Court of Canada or the Supreme Court of Canada, in the matter of the judicial interpretation of tariff item No. 504. Presented 4th June, 1913.—*Mr. Maclean (Halifax)*

Not printed.

126. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence passing between the government or any member thereof with respect to the east half of Section 27 in township six (6) in range two (2) west of the third meridian. Presented 17th February, 1913.—*Mr. Martin (Regina)*.....*Not printed.*

127. Return to an Order of the House of the 27th January, 1913, for a return showing when the militia or regular forces was first called out in Canada since Confederation in aid of the civil authorities, how often, when and where has the same been called out since, the amount of money paid by each municipal corporation for such service in each case, what corps called out on each occasion, whether to quell strikes in each instance or for what purpose. Presented 18th February, 1913. *Mr. Macdonald.*

Not printed.

128. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, papers, &c., concerning the application by James McKelvey, of the town of Sarnia, Ontario, for Fenian Raid Volunteer Bounty. Presented 18th February, 1913. *Mr. Macdonald*.....*Not printed.*

129. Return to an Order of the House of the 10th February, 1913, for a copy of all documents, correspondence, memorandums, reports, requests for inquiries, of the appointment of commissioners and other documents, relating to the study of the causes for the depopulation of country places and the high cost of living in the eastern provinces of the Dominion. Presented 18th February, 1913. *Mr. Paquet*.....*Not printed.*

130. Return to an Order of the House of the 9th December, 1912, for a copy of all papers, documents, memoranda and correspondence relating to the application of the Banque Internationale to the Treasury Board for a certificate for the commencement of business. Presented 18th February, 1913 *Mr. Maclean (Halifax)*.....*Not printed.*

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131. Return to an Order of the House of the 4th December, 1912, for a copy of all papers, documents, telegrams, reports, letters, and instructions regarding smelt and salmon fishing in the Restigouche river and the Baie des Chaleurs since October, 1911, up to date, together with copy of instructions issued to officials of the Department of Marine and Fisheries in that connection. Presented 18th February, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

132. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence and papers concerning the increase of salary of Mr. Sevigny, employed at the immigration office at Montreal. Presented 18th February, 1913.—*Mr. Carvell.*
Not printed.

133. Return to an Order of the House of the 5th February, 1913, for a return showing whether any order for goods has been given by the Department of Public Works since 1st October, 1911, at Montreal, Quebec, St. John and Halifax; tenders asked for in each case; orders for goods given without tenders; names of firms, and amounts in each case. Presented 19th February, 1913.—*Mr. Macdonald*.....*Not printed.*

134. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence and other papers, in the Department of Public Works, concerning the awarding of a contract for a Welsh coal supply to the various Dominion public buildings in Montreal. Presented 19th February, 1913.—*Mr. Lemieux*....*Not printed.*

135. Return to an Order of the House of the 5th December, 1912, for a return showing how many dredging contracts were let by the Department of Public Works during the year 1911-12, the name of each tenderer and the amount of each tender. Presented 19th February, 1913.—*Mr. Lemieux*.....*Not printed.*

135*a*. Return to an Order of the House of the 4th December, 1912, for a return showing the quantity by cubic yards of dredging made in the harbour of Bathurst by the dredge *Restigouche* during the months of May, June, July, August, September, October, and November of the year 1911, and during the same months in the year 1912. Presented 19th February, 1913.—*Mr. Turgeon*.....*Not printed.*

135*b*. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, documents, recommendations and reports respecting the dredging Des Prairies river, the work done, depth, length and width of channel dredged, the list of men employed to perform that work, their salaries, and the amount of money spent on that work since the 1st of October, 1911, up to the 21st November, 1912. Presented 12th May, 1913.—*Mr. Wilson (Laval)*.....*Not printed*

135*c*. Return to an Order of the House of the 3rd March, 1913, for a copy of all documents, letters, reports of engineers and a detailed statement of expenditure in connection with dredging at Ste. Anne de Restigouche and Cross Point, Bonaventure County. Presented 4th June, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

135*d*. Return to an Order of the House of the 19th March, 1913, for a return showing the amount of dredging done by the government dredges for private parties or firms in Prince Edward Island, during the season of 1912; the names of the parties or firms for whom this dredging was done; the number of yards of material dredged for each party or firm; the class of material dredged, and the price per yard the government charged for this dredging; who measured the material dredged, and whether it was scow measurement that was made; who recommended the said dredging to be done; if the resident engineer or any engineer was consulted in regard to the measuring, and if the resident engineer or any engineer had control over the matter at all. Presented 6th June, 1913.—*Mr. Hughes (Kings, P.E.I.)*.....*Not printed.*

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136. Return to an Order of the House of the 9th December, 1912, for a copy of the accounts of Jean Baptiste Lena and of his wife, for work done to the public buildings at Valleyfield, Quebec, in May, 1912; also for a copy of all correspondence, reports and documents relating to the payment in full or a part of their accounts. Presented 19th February, 1913.—*Mr. Pupineau*.....*Not printed.*

137. Return to an Order of the House of the 4th December, 1912, for a return showing the amount of money expended in improving the channel of the Ottawa river between the city of Hull and the village of Masson. Presented 19th February, 1913.—*Mr. Devlin.*
Not printed.

138. Return to an Order of the House of the 4th December, 1912, for a copy of all documents relating to the transferring of P. E. Amiot, resident engineer of the Department of Public Works, Bonaventure, Quebec, to the district of Chicoutimi and Saguenay, and the appointment in his stead, in Bonaventure County, of Charles E. Tache, of Chicoutimi, as resident engineer, with a copy of all the instructions given to the latter and his duties, residence and salary. Presented 19th February, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

139. Return to an Order of the House of the 4th December, 1912, for a copy of all petitions, correspondence, memoranda, reports, and resolutions of county or other municipal councils of Bonaventure County asking or objecting to certain public works in Bonaventure County since October, 1911, with the Minister of Public Works, or any member of the present administration, and replies made thereto. Presented 19th February, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

140. British Canadian Loan and Investment Company, Limited, Toronto, for year 1911.—*(Senate)*.....*Not printed.*

141. Claims of present fish warden, Baker Lake, County of Madawaska, N.B.—*(Senate)*.
Not printed.

141a Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, reports, information, convictions and other documents in the possession of the Department of Marine and Fisheries or any officer thereof relating to the prosecution in the year 1910, against George Rowlings and James Rowlings, of Musquodoboit Harbour, County of Halifax, for a violation of the fishery regulations. Presented 21st May, 1913.—*Mr. Sinclair*.....*Not printed.*

141b. Return to an Order of the House of the 29th January, 1913, for a copy of all papers, letters, telegrams and documents or other communications, had with the Department of Marine and Fisheries or any official thereof, in regard to the prosecutions against the following parties:—Samuel Stewart, Melvin Hart, Andrew McNeil, Thomas McNeil, Hugh Malcolm, Tom Moffatt, James Waddin, Samuel Wright and Dougald Higgins, of Westville, County of Pictou, for infractions of the Fisheries Act, and of any applications or letters relative to relief from the fines imposed or the return of the same; and also of all papers, letters, and other documents relating to a charge against Rod. Martin, of Westville aforesaid, a fishery guardian, for illegal fishing and other offences. Presented 21st May, 1913.—*Mr. Macdonald*.....*Not printed.*

141a Claims of Messrs. Boulanger and Son, Montmagny, Quebec.—*(Senate)*....*Not printed.*

142. Copy of Report of Minister of Justice in re Florence Mining Company.—*(Senate)*.
Not printed.

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113. Instruction sent to the different Lieutenant Governors of different provinces of Canada, with commissions.—(*Senate*).....*Not printed.*

144. Return to an Order of the House of the 15th January, 1913, for a copy of all papers, letters, documents, telegrams, reports and opinions in relation to the claim of William Iceton, of Purcell's Cove for a return of a boat from the Department of Marine and Fisheries or any other department. Presented 20th February, 1913.—*Mr. Macdonald* .....*Not printed.*

145. Return to an Address to His Royal Highness the Governor General of the 9th December 1912, for a copy of all papers, telegrams, letters and orders in council respecting the transfer of the property known as the Police Point Reserve to the corporation of the City of Medicine Hat, Alberta. Presented 20th February, 1913.—*Mr. Buchanan.* *Not printed.*

146. Return to an Order of the House of the 29th January, 1913, for a copy of the inquiry made by F. B. Atkinson, Lévis, as to an accident that happened to the horse of Arsene Lauzier, at Amqui, County of Rimouski, on the 19th February, 1912. Presented 20th February, 1913.—*Mr. Boulay*.....*Not printed.*

147. Correspondence, memoranda, &c., in respect to the issue of a patent for the N. ½ of S. W. ¼ of section 8, in township 49, range 26, west of the 2nd meridian, to one Arthur Donaldson, bearing date the 19th November, 1912. Presented by Hon. Mr. Roche, 20th February, 1913.....*Not printed.*

147*a*. Return to an Order of the House of the 12th February, 1913, for a copy of all letters, telegrams and other documents with respect to the north half of the southwest quarter of section eight (8), township forty-nine (49), range twenty-six (26), west of the second meridian, province of Saskatchewan, and the granting of a homestead entry for the said land to one Arthur Donaldson. Presented 6th June, 1913.—*Mr. Martin (Regina)*.....*Not printed.*

148. Return to an Order of the House of the 12th February, 1913, for a copy of all papers, reports and other documents relating to the delay of the Indian Department in issuing patents for lands purchased from the St. Peters band of Indians, and forming part of the St. Peters Indian reserve, Manitoba. Presented 25th February, 1913. —*Mr. Oliver*.....*Not printed.*

149. Return an Address to His Royal Highness the Governor General of the 27th January, 1913, for a copy of all applications addressed to the Government by the Algoma Steel Company for remission of duties on rails imported by the said company at Fort William; of all correspondence on the same, of all evidence sought and obtained by the government and supplied by the company in support of its application; and of all orders in council ordering such remission of duties. Presented 25th February, 1913.—*Sir Wilfrid Laurier*.....*Not printed.*

150. Return to an Order of the House of the 24th February, 1913, for a return showing the stenographers and secretaries of the House of Commons, and the names of the members for whom each of them work. Presented 26th February, 1913.—*Mr. Boulay.* *Not printed.*

150*a*. Return to an Order of the House of the 31st March, ultimo, for a return giving the names and home addresses of the persons employed in the House of Commons as stenographers to members. Presented 1st April, 1913.—*Mr. Martin (Regina).* *Not printed.*

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151. Return to an Order of the House of the 16th January, 1913, for a return showing the number of bushels of grain and barrels or sacks of flour which were shipped from Montreal, Quebec, St. John, N.B., and Halifax, for twelve months preceding the 31st day of December, 1912; the kinds of each product respectively, and the quantities of said commodities at each of above points which were domestic and foreign. Presented 26th February, 1913.—*Mr. Bennett (Simcoe)*.....*Not printed.*

152. Return to an Order of the House of the 19th February, 1913, for a return showing in detail the quantity and values, respectively, of the imports and exports of Canada with Great Britain, United States, Australia and New Zealand, during the year ending 31st March, 1912, in horses, cattle, sheep, hogs, bacon, hams, fresh and salted beef, lard, tallow, mutton, canned meats, butter, cheese, eggs, poultry and apples. Presented 26th February, 1913.—*Mr. Sutherland*.....*Not printed.*

153. Return to an Address to His Royal Highness the Governor General of the 26th February, 1912, for a copy of all letters, documents and correspondence relating to action by the Government in regrd to the relief of the shareholders and depositors of the Farmer's Bank, and of the order in council appointing Sir William Meredith as Commissioner, and all correspondence in relation thereto. Presented 26th February, 1913. —*Mr. Macdonald*.....*Not printed.*

153a. Report of the Honourable Sir William Ralph Meredith, Kt., Commissioner appointed to make investigation into all matters connected with the Farmers Bank of Canada. Presented by Hon. Mr. White, 26th February, 1913.

Printed for distribution and sessional papers.

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(This volume is bound in three parts.)

153b. Report of Royal Commission authorized by orders in council dated 19th day of July, 1912, and the 5th day of August, 1912, to inquire into alleged complaints as to methods of weighing butter and cheese in Montreal, and also as to the methods of payment. Presented by Hon. Mr. Burrell, 30th May, 1913.

Printed for distribution and sessional papers.

154. Return to an Order of the House of the 27th January, 1912, for a return showing the amount of the subsidy paid to each of the four original provinces of the Dominion at Confederation, and the population on which such payment was based; the subsidy payable to each of the remaining five provinces on entering the union, and the population on which such payment was based; the sum added to the subsidy of any province as better terms, and the date which such addition was made respectively; the details of each readjustment of subsidies since 1867, and the yearly subsidy at present payable to each province, with the population on which such payment is based, and the original debt allowance, if any, respectively, placed to the credit of each province on entering the union. Presented 27th February, 1913.—*Mr. Sinclair.*

Printed for sessional papers only.

155. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence in regard to the disposition of the Marine Hospital at Pictou to the town of Pictou, or any other corporation or person. Presented 27th February, 1913.—*Mr. Macdonald*.....*Not printed.*

156. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, tenders, contracts, papers and other documents in the possession of the Department of Marine and Fisheries relating to the making and cancellation of a contract or agreement between the said department and one Charles G. Giffin, of Isaac Harbour,

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N.S., to perform certain services for the lobster hatchery at that place, and also relating to a subsequent agreement with one Philip McArthur to perform similar duties. Presented 27th February, 1913.—*Mr. Sinclair*.....*Not printed.*

157. Return to an Order of the House of the 29th January, 1913, for a copy of all papers and correspondence concerning the claim of Charles Mennier, ex-Collector of Customs at Marieville, Quebec, for rent. Presented 28th February, 1913.—*Mr. Lemieux.*
Not printed.

158. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, correspondence, documents and reports relating to the closing of the post office at Pomket river, Antigonish County, Nova Scotia, and the cancellation of the contract for the carrying of the mail between Heatherton and Pomket river. Presented 28th February, 1913.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

158*a*. Return to an Order of the House of the 27th January, 1913, for a copy of all letters, telegrams, petitions and other correspondence and documents received by the Post Office Department during the last twelve months from the honourable member for East Grey and others, relating to the closing of the post office at Harkaway, County of Grey province of Ontario, and of the proposed change in the mail service. Presented 22th March, 1913.—*Mr. Lancto*t.....*Not printed.*

159. Claims put forth by and on behalf of Indians of British Columbia—Report of James T. McKenna on.—(*Senate*).....*Not printed.*

159*a*. Return to an Address to His Royal Highness the Governor General of the 20th January, 1913, for a copy of all correspondence between the Government of British Columbia and the Government of Canada concerning the rights and claims of the Indians in the province, and of all orders in council with regard to the same. Presented 14th May, 1913.—*Sir Wilfrid Laurier*.....*Not printed.*

159*b*. Return to an Order of the House of the 28th April, 1913, for a copy of all correspondence, reports and recommendations from Rev. R. L. Macdonald, Indian agent at Salmon River reserve, Richmond County, N.S., relating to the Indian school in said reserve; and of all correspondence and instructions from the Department of Indian Affairs to the said Indian agent, relating to the same; also a copy of all complaints, charges and reports against Miss Charlotte M. Devereaux, teacher of the said school, and of all correspondence and recommendations relating to the appointment of Earnest McNeil to succeed her, since 1st January, 1912. Presented 23rd May, 1913.—*Mr. Kyte*.....*Not printed.*

159*c*. Return to an Order of the House of the 12th May, 1913, for a copy of the last surrender and of all papers, correspondence and other documents in connection with the surrender of part of the White Bear Indian Reserve; together with a copy of all letters and telegrams referring to this surrender by officials of the Department or others, and of the authority on which this surrender was taken, the number of acres surrendered, and how disposed of. Presented 23rd May, 1913.—*Mr. Bradbury.*
Not printed.

159*d*. Return to an Order of the House of the 30th April, 1913, for a copy of all letters, papers, memoranda and other documents, dated since 1st January, 1912, relating to the Kitsilano Indian Reserve in the City of Vancouver. Presented 23rd May, 1913.—*Mr. Oliver*.....*Not printed.*

160. Immigrants—number of, who settled in Canada, in 1911-12, and from whence.—(*Senate*).
Not printed.

CONTENTS OF VOLUME 28.—*Continued.*

160a. Return to an Order of the House of the 7th May, 1913, for a return showing the number of immigrants coming into Canada during the year ending 31st March, 1913, inspected by the government medical inspectors; the total cost of such medical inspections; the number of medical doctors employed by the government during that period; the name, salary and location of each, including those resident in Ottawa. Presented 6th June, 1913.—*Mr. Schaffner*.....*Not printed.*

161. Correspondence with Mr. V. Steffansson concerning northern expedition. Presented by Hon. Mr. Hazen, 3rd March, 1913.....*Not printed.*

161a. Copy of order in council No. P.C. 406 of the 22nd February, 1913, with reference to Mr. V. Steffansson's proposed northern expedition. Presented by Hon. Mr. Hazen, 10th March, 1913.....*Not printed.*

162. Return to an Address to His Royal Highness the Governor General of the 25th March, 1912, for a copy of all letters, requests, petitions, orders in council and other documents in the possession of the Department of Marine and Fisheries relating to the change in the fishery regulations by which steam trawlers were prohibited from participating in the fishing bounty. Presented 3rd March, 1913.—*Mr. Sinclair.*
Not printed.

162a. Return to an Address to His Royal Highness the Governor General, of the 10th February, 1913, for a copy of all petitions, correspondence, reports of experts or officers, of orders in council, minutes of council, and of other papers and documents in the possession of the Department of Marine and Fisheries, or any department of the government, relating to steam trawling on the Atlantic seaboard. Presented 15th April, 1913.—*Mr. Sinclair*.....*Not printed.*

163. Return to an Order of the House of the 19th February, 1913, for a copy of all correspondence, papers, accounts, vouchers, concerning the purchase and subsequent repairs of a private car by the Department of Militia and Defence, from the Canadian Northern Railway Company. Presented 3rd March, 1913.—*Mr. Lemieux.*
Not printed.

164. Return to an Order of the House of the 24th February, 1913, for a return showing separately the amount paid by the Department of Indian Affairs for medical attendance on account of the Indians on the Micmac reserve of Ste. Anne de Restigouche, Quebec, for each year from 1900 to 1913, inclusive, and to whom paid. Presented 10th March, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

165. Return to an Order of the House of the 19th February, 1913, for a copy of all correspondence, letters, telegrams and other documents relative to the sale of alleged Indian lands at Nyanza, riding of North Cape Breton and Victoria, N.S., to one Philip McDonald, such sale having taken place about the year 1877. Presented 17th March, 1913.—*Mr. McKenzie*.....*Not printed.*

165a. Return to an Order of the House of the 7th May, 1913, for a return showing the number of acres surrendered by the Coté's Band of Indians, the number of acres sold by private sale, the number of acres still unsold; together with a copy of all letters from persons who made application for purchase of surrendered lands in Coté's reserve, or from any person on behalf of purchasers and replies thereto; and of all reports, letters or memoranda addressed to the Superintendent General of Indian Affairs, from any officer of the department respecting the private sale of said lands; also a copy of any document or documents covering the authority under which these lands were sold by private sale, and of all letters addressed to the department, or any officer of department, respecting the sale of said lands. Presented 3rd June, 1913.—*Mr. Bradbury*.....*Not printed.*

CONTENTS OF VOLUME 28.—*Continued.*

166. Return to an Order of the House of the 12th February, 1913, for a copy of all letters, reports and other documents received by the Minister of Labour regarding labour conditions on the Grand Trunk Pacific between Tête Jaune Cache and Fort George. Presented 17th March, 1913.—*Mr. Oliver*.....*Not printed.*

167. Return to an Address to His Royal Highness the Governor General of the 3rd February, 1913, for a copy of all telegrams, letters and other documents passing between the Government of Canada, or any member thereof, and the Government of the Province of Saskatchewan, or any member thereof, with respect to chapter 17 of the statutes of Saskatchewan, 1912, being an Act to prevent the employment of female labour in certain capacities. Presented 17th March, 1913.—*Mr. Martin (Regina)*.....*Not printed.*

168. Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, petitions and other papers received by the Prime Minister, or any member of the government, since the 1st April, 1912, in connection with the school system established in that portion of the Keewatin Territory annexed to the province of Manitoba. Presented 17th March, 1913.—*Mr. Macdonald*.....*Not printed.*

169. Return to an Order of the House of the 29th January, 1913, for a return showing the number of accidents to lock gates or bridges on the Welland Canal during the year ending 25th November, 1912, the nature of the accidents, the amount of damage in each case and the amount recovered by the Government from vessel owners in each instance. Presented 18th March, 1913.—*Mr. Graham*.....*Not printed.*

170 Return to an Order of the House of the 3rd March, 1913, for a copy of the contract passed on the 6th day of August, 1910, between the City of Quebec and the Transcontinental Railway Commissioners, for the acquisition by the latter of the property known as Champlain Market, to be used as a station and terminals for the said railway; of all the correspondence between the said city and the present Commissioner of the said railway, with the Minister of Railways, or any other Minister, with regard to the non-execution of the said contract by the said commission. Presented 18th March, 1913.—*Sir Wilfrid Laurier*.....*Printed for sessional papers only.*

171. Return to an Order of the House of the 29th of January, 1913, for a copy of all letters, correspondence, &c., respecting the request for suspension by H. Boulay, of J. Stahl, assistant inspector of immigration on the railway. Presented 19th March, 1913.—*Mr. Boulay* .....*Not printed.*

172. Return to an Order of the House of the 17th February, 1913, for a return showing the total area of land thrown open for pre-emption and purchased homesteads in each of the provinces of Saskatchewan and Alberta since the passing of the Dominion Lands Act of 1908; also the number of acres of such lands which have been disposed of by way of pre-emptions and purchased homesteads in each of the said provinces, the amount of principal money collected on account of such lands in each of the said provinces up to 31st December, 1912, and the amount of interest collected on account of such lands in each of the said provinces to 31st December, 1912. Presented 19th March, 1913.—*Mr. Martin (Regina)*.....*Not printed*

173. Return to an Order of the House of the 10th February, 1913, for a copy of all letters, correspondence, memorials and other documents received by the Right Honourable the Prime Minister and the Honourable the Minister of Justice, since the 1st day of January, 1912, relating to the request by county court judges for an increase of salary and for an amendment to the Judges Act with respect to retiring allowances. Presented 26th March, 1913.—*Mr. Proulx*.....*Not printed.*

CONTENTS OF VOLUME 28.—*Continued.*

174. Return to an Order of the House of the 13th February, 1913, for a return showing the names of the keepers in Portsmouth penitentiary, and their religious belief; the names of any of the said keepers who may have been dismissed, the date, charges and on whose recommendation were they reinstated. Presented 26th March, 1913.—*Mr. Edwards*..... .....*Not printed.*

174a Return to an Order of the House of the 13th February, 1913, for the name of the discipline officer in charge of each of the following departments in Portsmouth penitentiary, the date when each was first appointed on the penitentiary staff, the date to his present position, and the religious belief of each: Quarry, farm, warden's residence and grounds, blacksmith shop, bath room and laundry, stone shed, tailor and shoe shop, changing room, stone pile, sewage plant, asylum ward, cell wings, library and Roman Catholic and Protestant chapels, hospital, shop dome, carpenter, tin and paint shop, and prison of isolation. Presented 25th March, 1913.—*Mr. Edwards.*
Not printed.

175. Return to an Order of the House of the 17th February, 1913, for a copy of all statements of account for salary or remuneration to the Commissioner, and his expenses, for witness fees and all other expenses in connection with the investigations by Commissioner Duchemin, of the following persons in Antigonish County namely: Patrick M. Deroste, deckhand SS. *Scotia*, Harbour au Boucher; William R. Fougère, sectionman, Harbour au Bouche; Allen Kinney, sectionman, Linwood; Hubert Myatte, sectionman, Tracadie; John McDonell, sectionman, Afton Station; John W. Malanson sectionman, Afton; James Armstrong, sectionman, Heatherton; Charles Landry, sectionman, Pomket; William S. Landry, section foreman, Pomket; Colin McDonald, sectionman, James River; Archibald Chisholm, station agent, Heatherton; Joseph Benoit, station agent, Pomket; Alex. R. McAdam, fishery officer, Malignant Cove; Alex. McDonald, sub-collector, Doctors Brook; Charles L. Gass, sub-collector, Bayfield; Jeffrey M. Crispo, sub-collector, Harbour au Bouche; Hugh R. McAdam, postmaster, Arisaig; Thomas J. Sears, postmaster, Lochaber, Charles L. Gass, postmaster, Bayfield; and Joseph P. Benoit, postmaster, Pomquet; also the expenses in detail, of and incidental to the investigation by said Commissioner Duchemin of the charges made against John J. McDonald, postmaster, McArra's Brook; Archibald Stewart, section foreman, Harbour au Bouche; Ronald McFarlane, section foreman, Williams Point; Henry Williams, sectionman, Marshy Hope; and John W. McInnes, bridge foreman Intercolonial Railway, Antigonish. Presented 26th March, 1913.—*Mr. Chisholm* (*Antigonish*)..... .....*Not printed.*

175a. Return to an Order of the House of the 28th April, 1913, for a return showing the date of the appointment of H. P. Duchemin, Investigating Commissioner for Eastern Nova Scotia; the number of days he has been employed by the government since the appointment; the gross amount paid to Mr. Duchemin as an allowance for his services, excluding travelling expenses or other outlay; the amount which has been paid to Mr. Duchemin to date for travelling expenses, living expenses, witness fees, and other sundry expenses, respectively. Presented 21st May, 1913. *Mr. Sinclair.*
Not printed.

176. Return to an Order of the House of the 4th December, 1912, for a copy of the report or reports made by C. E. Taché, resident engineer of Bonaventure County, Quebec, on public works existing or asked for in that constituency since October, 1911, up to date. Presented 28th March, 1913. *Mr. Marcil* (*Bonaventure*).....*Not printed.*

177. Return to an Order of the House of the 6th February, 1913, for a return showing what properties within the area north of Wellington street and west of Bank street, in the City of Ottawa, have been purchased or acquired by the Government, from whom the said purchases were made, and the price paid, or agreed to be paid, in each case, the

CONTENTS OF VOLUME 28.—*Continued.*

number of said properties not yet paid for, the names of the owners thereof, and amount, if any, in dispute in each case; the names of the persons who were employed in any capacity, or for any purpose, in connection with the purchase of the said properties, and the terms of their employment; the amount which has been paid to each, and further amounts to be paid to such persons, giving their respective names; whether the Government has employed any persons or agents to collect rent from the tenants or occupants of any of the said properties, if so, the names of such rent collectors, for what period employed, and amount by way of salary, fees, or commission, paid to each; the total amount paid by the Government up to 31st January, 1913, in connection with the purchase or acquisition of the said properties. Presented 28th March, 1913.—*Mr. Murphy* .....*Not printed.*

178. Return to an Order of the House of the 24th January, 1913, for a copy of all correspondence between the Minister of Public Works and H. Morel, M.P.P., for East Nipissing, in any way relating to the construction of a road or highway from North Bay to Sturgeon Falls, Ontario; and of all petitions, correspondence, surveys, and engineers' reports in any way connected with the building of the said road or highway. Presented 28th March, 1913.—*Mr. Murphy*.....*Not printed.*

179. Return to an Order of the House of the 4th December, 1912, for a copy of all pay-lists, letters, documents, telegrams and other papers in connection with the expenditures made on Brulé wharf in the County of Colchester during the last two years. Presented 28th March, 1913.—*Mr. Macdonald*.....*Not printed.*

179a. Return to an Order of the House of the 10th December, 1912, for a copy of all papers, documents, tenders and correspondence relating in any way to the construction of a wharf at Kraut Point, Lunenburg County, N.S. Presented 28th March, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

180. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, papers, &c., concerning the application made by the Eastern Canada Power Company, with a view to raise the head of the River St. Lawrence in the vicinity of Coteau, Cedar, Split Rock and Cascade rapids to the level of the water in Lake St. François. Presented 28th March, 1913.—*Mr. Lemieux*.....*Not printed.*

181. Return to an Order of the House of the 4th December, 1912, for a copy of all correspondence, letters and telegrams addressed by the Conservative candidate in the County of Gloucester at the election of 21st September, 1911, to the Minister of Public Works from the day he took his oath of office, on 10th October, 1911, up to the 31st December, of the same year, on the subject of public works then under construction in the said county. Presented 28th March, 1913.—*Mr. Turgeon*.....*Not printed.*

182. Return to an Order of the House of the 10th March, 1913, for a return showing the number of men of the R. C. regiment at Aldershot, during the summer of 1912, previous to the regular militia camp; date of going into camp; number there during said time; whether tenders for supplies for these men were called for; number of tenders received and from whom; if any contracts were awarded on said tenders and, if not, what was done with the said tenders; how and from whom were supplies for these men obtained; the prices paid during said time per pound respectively, for meat, sugar, butter, tea, coffee bacon, bread, and how much per bushel for vegetables; the cost per ration for supplies for said men of the R. C. regiment at Aldershot camp during the time aforesaid; the cost per ration for supplies to the regular militia camp under contract during the annual drill in the fall of 1912. Presented 28th March, 1913.—*Mr. Kyte*.....*Not printed.*

CONTENTS OF VOLUME 28.—*Continued.*

183. Report on wholesale prices in Canada, 1912, by R. H. Coats, B.A., F.S.S., editor of the *Labour Gazette*. Presented by Hon. Mr. Crothers, 28th March, 1913....*Not printed.*

184. Area of territories added to Ontario and Quebec, by Statutes of 1912.—(*Senate*). *Not printed.*

185. Relating to recent increase in prices charged Canadian fishermen for manilla cord.—(*Senate*).....*Not printed.*

186. Report of the Pilotage Commission of Quebec. Presented by Hon. Mr. Hazen, 28th March, 1913.....*Not printed.*

187. Return to an Order of the House of the 26th February, 1913, for a copy of all memoranda, letters, papers, telegrams and other documents in the possession of the Department of the Interior relating to the S. W. 36-16-27, W. 2. Presented 31st March, 1913. —*Mr. Knowles*.....*Not printed.*

187*a*. Return to an Order of the House of the 3rd March, 1913, for a copy of all correspondence, telegrams and other papers in connection with the southwest ¼ of 4-9-14 west of 2nd meridian. Presented 10th April, 1913.—*Mr. Bradbury*.....*Not printed.*

187*b*. Return to an Order of the House of the 26th March, 1913, for a copy of all papers, letters, memoranda and other documents relating to the northwest of 30-25-7-2. Presented 25th April, 1913.—*Mr. Oliver*.....*Not printed.*

187*c*. Return to an Order of the House of the 3rd March, 1913,—1. For a copy of all correspondence and other papers in connection with the disposal of the following lands and the claim of James W. Brown in connection with these lands:—

Part of S.E. ¼ section 21-20-21-W. 2nd meridian, area 5/100ths acre.
Part of N.E. ¼ section 21-20-21-W. 2nd meridian, area 110/100ths acre
Part of S.E. ¼ section 20-20-21-W. 2nd meridian, area 80 acres.
Part of S.W. ¼ section 28-20-21-W. 2nd meridian, area 72 42/100ths acres.
Whole of S.E. ¼ section 28-20-21-W. 2nd meridian, area 160 acres.
Whole of N.E. ¼ section 32-20-21-W. 2nd meridian, area 160 acres.
Part of S.E. ¼ section 32-20-21-W. 2nd meridian, area 80 acres.
Whole of N.W. ¼ section 5-21-21-W. 2nd meridian, area 160 acres.
Whole of S.E. ¼ section 5-21-21-W. 2nd meridian, area 160 acres.
Part of N.E. ¼ section 5-21-21-W. 2nd meridian, area 123 85/100ths acres.
Whole of S.W. ¼ section 5-21-21-W. 2nd meridian, area 160 acres.

2. Also of all papers in connection with the disposal of the whole of the northwest quarter-section 22-20-21, west of the second meridian; and part of S.W. ¼, 2-20-21-W. of the second meridian; and of all correspondence and papers in connection with Alexander Hurst Brown's claim re these lands. Presented 30th April, 1913.—*Mr. Bradbury*.....*Not printed.*

187*d*. Return to an Order of the House of the 9th April, 1913, for a copy of all letters, papers, telegrams and other documents in connection with the sale of the N.W. quarter-section 29 10-18-W. Presented 13th May, 1913. *Mr. Turriff*.....*Not printed.*

187*e*. Return to an Order of the House of the 28th April, 1913, for a copy of all letters, memoranda and other documents relating to the northeast quarter of 14-75-15-5, during the years 1911, 1912, and 1913 to date. Presented 13th May, 1913. *Mr. Oliver*. *Not printed.*

CONTENTS OF VOLUME 28.—*Continued.*

187*f*. Return to an Order of the House of the 31st March, 1913, for a copy of all papers, telegrams, applications, and other documents in connection with the S.W. 2-19-20, west 2nd M. Homestead, patented 3rd June, 1892; the S. ½ of N.E. 20-20-21, west 2nd M. patented 11th October, 1904, N.W.H.B., as assignee of Edward Boucher; the S.E. ¼ of 22-20-21, west 2nd M., N.W.H.B., patented 22nd September, 1900, as assignee of Louis McGillies; the S.E. ¼ of 28-20 21, west 2nd M., N.W.H.B., patented 26th August, 1901, as assignee of J. Bte. Fagant, jr., and the E. ½ of S.E. ¼ of 32-20-21, west 2nd M., N.W.H.B., patented 11th September, 1901, as assignee of Jos. Alexander; and of all papers in connection with any claims of G. W. Brown or others in connection with these lands. Presented 3rd June, 1913.—*Mr. Bradbury*.....*Not printed.*

187*g*. Return to an Order of the House of the 31st March, 1913, for a copy of all papers, telegrams, applications and other documents regarding the S.W. ¼, 28-20-21, west 2nd M., N.W.H.B., patented 1st March, 1909, as assignee of Norbert Bellehumeur; and the W. ½ of S.E. ¼, 32, 20, 21, west 2nd M., N.W.H.B., patented 1st March, 1909, as assignee of Norbert Bellehumeur; and of all papers in connection with any claims by Norman McKenzie or others against the Government in connection with these lands. Presented 4th June, 1913.—*Mr. Bradbury*.....*Not printed.*

188. Return to an Order of the House of the 10th March, 1913, for a copy of all correspondence or communication of any kind between the Department of Insurance at Ottawa and the Department of Insurance at Toronto since June, 1907, touching the transfer of the Canadian Guardian Life Insurance Company from the jurisdiction of the Insurance Department at Ottawa to that of the jurisdiction of the Insurance Department at Toronto; of all correspondence, if any, between the Insurance Department at Ottawa and the *Saturday Night*, newspaper of Toronto, touching the affairs of the Canadian Guardian Life Insurance Company or the International Insurance Company, Limited; and of all correspondence and other communications between the Department of Insurance at Ottawa and the Government of the province of Alberta in reference to the affairs of the Canadian Guardian Life Insnrance Company or the International Insurance Company, Limited. Presented 31st March, 1913.—*Mr. German.*
Not printed.

189. Copy of an Order in Council, &c., respecting a contribution of $30,000 to assist in alleviating the distress of the sufferers by the disastrous cyclone which swept over the City of Regina and its vicinity. Presented by Hon. Mr. White, 31st March, 1913.
Not printed.

190. Copy of correspondence respecting the Treaty of Commerce and Navigation between the United Kingdom and Japan. Presented by Hon. Mr. Borden, 1st April, 1913.
Printed for sessional papers only.

190*a*. From Imperial Consulate General of Japan for the Dominion of Canada. The undersigned, His Imperial Majesty's Consul General at Ottawa, duly authorized by His Government, has the honour to declare that the Imperial Japanese Government are fully prepared to maintain with equal effectiveness the limitation and control which they have since 1908 exercised in the regulation of emigration from Japan to Canada. 11th April, 1913. Presented by Hon. Mr. Borden, 11th April, 1913.....*Not printed.*

191. Copy of the order in council in connection with the appointment of a Commission to inquire into the claims of the province of British Columbia for exceptional treatment. Presented by Hon. Mr. Borden, 1st April, 1913.....*Printed for sessional papers only.*

191*a*. Memorandum *re* British Columbia's claims for special consideration. Presented by Hon. Mr. Borden, 1st April, 1913.....*Printed for sessional papers only.*

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191*b*. Copies of orders in council, &c., relating to the appointment of commissioners to adjust all matters relating to Indian lands and Indian affairs generally in the province of British Columbia. Presented by Hon. Mr. Borden, 17th April, 1913.
Not printed.

191*c*. Report of the Royal Commission appointed to inquire into and report upon the law respecting pilotage and its administration in the pilotage districts of Montreal and Quebec; and what changes, if any, are desirable therein; and also, a letter addressed to the Minister of Marine and Fisheries from Mr. Ajutor Lachance, one of the commissioners. Presented by Hon. Mr. Pazen, 18th April, 1913.....*Not printed.*

191*d*. Report of Royal Commission on Industrial Training and Technical Education, Parts I, II, III. and IV. Presented by Hon. Mr. Crothers, 4th June, 1913.
Printed for distribution and sessional papers.

192. Return to an Order of the House of the 24th February, 1913, for a copy of all memoranda, letters, papers and documents relating to the setting apart of a forest reserve on the north side of the Saskatchewan river opposite the City of Prince Albert. Presented 2nd April, 1913.—*Mr. Oliver*.....*Not printed.*

192*a*. Return to an Order of the House of the 26th February, 1913, for a copy of all memoranda, reports, letters, and other documents of any kind in the possession of the Department of the Interior relating to the suitability for forest reserve or for homesteading purposes, of the whole or any part of townships 24 and 25, range 27, west of the first meridian, now forming part of the Riding Mountain Forest Reserve. Presented 11th April, 1913.—*Mr. Oliver*.....*Not printed.*

193. Return to an Order of the House of the 10th February, 1913, for a copy of all correspondence exchanged between the Department of Marine and Fisheries and the member for Temiscouata, and all other persons, respecting the placing of a light or line of lights on wharf at Ile Verte, County of Temiscouata. Presented 4th April, 1913.—*Mr. Paquet*.....*Not printed.*

194. Copy of a report of the Committee of the Privy Council, approved by His Excellency the Administrator, on the 5th April, 1913, relative to a contract for an ocean mail, passenger and freight steamship service between Canada and Great Britain and Great Britain and Canada, together with the articles of agreement for the said service. Presented by Hon. Mr. Pelletier, 7th April, 1913.....*Not printed.*

195. Return to an Order of the House of the 10th March, 1913, for a statement showing the total volume of trade, in import and export, respectively, between Canada and Newfoundland for each year during the period from the 1st day of January, 1896, to the 1st day of January, 1913, and of what the said trade consisted of each year.

2. The volume of trade between Newfoundland and the West Indian Islands, included in the West Indian trade agreement with Canada, dated the 9th day of April, 1912, during the years 1909, 1910, 1911 and 1912, in import and export, and of what the said import and export consisted of each year. Presented 10th April, 1913.—*Mr. McKenzie.*
Not printed.

195*a*. Supplementary return to an Order of the House of the 10th March, 1913, for a statement showing the total volume of trade, in import and export, respectively, between Canada and Newfoundland for each year during the period from the 1st day of January, 1896, to the 1st day of January, 1913, and of what the said trade consisted of each year.

CONTENTS OF VOLUME 28.—*Continued.*

·2. The volume of trade between Newfoundland and the West Indian Islands, included in the West Indian trade agreement with Canada, dated the 9th day of April, 1912, during the years 1909, 1910 1911 and 1912, in import and export, and of what the said import and export consisted of each year. Presented 21st April, 1913.—*Mr. McKenzie* ....*Not printed.*

186. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, telegrams, and correspondence referring in any way to the purchase or leasing of the property in Antigonish, N.S., now in use as a gun shed or store house for the equipment of the 18th Field Battery of Artillery. Presented 14th April, 1913. *Mr. Chisholm (Antigonish)*..... .....*Not printed.*

197. Return to an Order of the House of the 19th March, 1913, for a copy of all tenders asking for the construction of a drill hall at Fernie, B.C., of all correspondence concerning the awarding of the contract, and of all correspondence and documents regarding said tender and contract. Presented 14th April, 1913.—*Sir Wilfrid Laurier. Not printed.*

197*a*. Supplementary return to an Order of the House of the 19th March, 1913, for a copy of all tenders asking for the construction of a drill hall at Fernie, B.C., of all correspondence concerning the awarding of the contract, and of all correspondence and documents regarding said tender and contract. Presented 6th June, 1913.—*Sir Wilfrid Laurier*..... ....*Not printed.*

198. Return to an Order of the House of the 24th February, 1913, for a copy of all correspondence and documents between the government of Canada or any officer thereof, and one Miss Mastin, of England, relating to a presentation of certain chinaware and other curiosities, made to the Government by the said Miss Mastin, in memory of the defeat at the polls of the agreement relating to reciprocity with the United States. Presented 14th April, 1913.—*Mr. Sinclair*.....*Not printed.*

199. Return to an Order of the House of the 19th March, 1913, for a return showing the names, professions or occupations, residences, the date of appointment, and the salary in each case, of all correspondents of the *Labour Gazette*, and also the number of changes made in that particular for the year 1912. Presented 22nd April, 1913.—*Mr. Verville* ....*Not printed.*

200. Return to an Order of the House of the 25th March, 1913, for a return showing the amount of seed grain supplied to settlers in Peace River during the year 1912; the amount of seed grain being provided for settlers in Peace River during 1913; who distributed the seed grain supplied in 1912 and who is authorized to distribute seed grain in 1913; under what conditions seed grain was supplied during 1912, and those proposed for 1913; if provisions were supplied during 1912, what the conditions were and who gave out the supplies; if it is intended to supply provisions in 1913, what conditions will be given and who will give them out. Presented 25th April, 1913.—*Mr. Oliver* ....*Not printed.*

201. Return to an Order of the House of the 7th April, 1913, for a copy of all documents in the Department of the Interior prior to the issue of the Crown patents relating to Lot No. 217 of the Hudson Bay Company Survey, in the parish of St. John, Winnipeg. Presented 25th April, 1913.—*Mr. Proulx*.....*Not printed.*

202. Return to an Order of the House of the 31st March, 1913, for a copy of all correspondence claims and reports with reference to compensation claimed by owners of horses attached to the 10th Field Battery at Camp Petawawa in the summer of 1912, by rea-

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son of damage or disease contracted while in the service; also of all such claims paid, the amounts in each case, and the persons to whom paid. Presented 25th April, 1913.—*Mr. Carvell*.....*Not printed*

203. Return to an Order of the House of the 11th December, 1912, for a copy of all papers, documents, pay-rolls, accounts, receipts, and correspondence in connection with all expenditures of money made in 1912 upon the Petite Rivière breakwater, Lunenburg County, Nova Scotia. Presented 29th April, 1913.—*Mr. Maclean (Halifax)*.
Not printed.

203a. Return to an Address to His Royal Highness the Governor General of the 9th December, 1912, for a copy of all advertisements tenders, contracts, orders in council, letters, correspondence, &c., relating to the construction of a wharf or breakwater at Seaforth, Halifax County, N.S. Presented 29th April, 1913.—*Mr. Maclean (Halifax)*.
Not printed.

203b. Return to an Order of the House of the 20th March, 1912, for a copy of all documents, letters, correspondence, petitions, reports, &c., addressed to the Department of Public Works since the 21st September last on the subject of a wharf now under construction at St. Croix, in the County of Lotbinière, province of Quebec. Presented 29th April, 1913.—*Mr. Fortier*.....*Not printed.*

203c. Return to an Order of the House of the 19th March, 1913, for a return showing whether the repairs to Red Point wharf, Lot 48, Prince Edward Island, have been completed; if the work was done by tender or by day labour; if by tender, with whom the contract was made; if by day labour, the number of superintendents, inspectors, or overseers employed, their names, the number of days each did work, and the wages per day paid to each; the number of men employed, their names, the number of days each did work and the wages per day paid to each; who supplied the materials; the amount of each kind or class used, and the price paid for each kind or class; the total amount paid for materials, wages and cost of the work. Presented 2nd May, 1913.—*Mr. Hughes (Kings, P.E.I.)*.....*Not printed.*

203d. Return to an Order of the House of the 31st March, 1913, for a copy of all documents, papers, correspondence, representations, &c., relating to the purchase of land at Digby, Nova Scotia, for the purpose of a site for a public wharf. Presented 2nd May, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

203e. Return to an Order of the House of the 19th March, 1913, for a return showing whether the repairs to Southport wharf, Lot 48, Prince Edward Island, have been completed; if the work was done by tender or by day labour; if by tender, with whom the contract was made; if by day labour, the number of superintendents, inspectors, or overseers employed, their names, the number of days each did work, and wages per day paid to each; the number of men employed, their names, the number of days each did work and the wages per day paid to each; who supplied the materials; the amount of each kind or class used and the price paid for each kind or class; the total amount paid for materials, wages and cost of the work. Presented 2nd May, 1913.—*Mr. Hughes (Kings, P.E.I.)*.....*Not printed.*

203f. Return to an Order of the House of the 11th December, 1912, for a copy of all accounts, correspondence, telegrams, complaints and other documents in possession of the Department of Public Works, in relation to the expenditure of moneys on harbour improvements at Grand Etang, during the year 1911-12. Presented 13th May, 1913.—*Mr. Chisholm (Inverness)*.....*Not printed.*

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203*g*. Return to an Order of the House of the 7th April, 1913, for a copy of all documents, correspondence, &c., relating to the purchase by the Department of Public Works of a certain quantity of timber for the construction of a wharf at St. Germain de Kamouraska, the said purchase having been made, as alleged, from Murray Castonguay during the year 1912. Presented 26th May, 1913.—*Mr. Lapointe (Kamouraska).* *Not printed.*

203*h*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters written to the Honourable Minister of Public Works, or to any officer of the Public Works Department, or to any member of the government since 10th October, 1911, by G. A. R. Rowlings, John S. Wells and S. R. Griffin, relating to the construction of public works, County of Guysborough, N.S., also a copy of the replies to the same. Presented 29th May, 1913.—*Mr. Sinclair*.....*Not printed.*

203*i*. Return to an Order of the House of the 7th May, 1913, for a copy of all correspondence exchanged between the Postmaster General and M. Isidore Belleau, of Quebec, in connection with improvements contemplated in Quebec harbour. Presented 2nd June, 1913.—*Mr. Carvell*.....*Not printed.*

203*j*. Return to an Order of the House of the 28th April, 1913, for a copy of all papers, documents, pay-rolls, receipts, accounts, correspondence, &c., relating to repairs made upon the breakwater at Petite Rivière, Lunenburg County, N.S., in the year 1912. Presented 6th June, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

204. Return to an Order of the House of the 4th March, 1912.—1. For a copy of all reports of engineers from 1874 to 1900, relating to the most suitable site in the harbour of Quebec for the construction of a dry dock.

2. Of all correspondence exchanged on the subject of a choice of a site for the dry dock now existing at St. Joseph de Lévis, at the time of its construction.

3. Of engineers reports, plans, maps and bearings relating to the construction of a new dry dock in the port of Quebec since 1900.

4. Of all correspondence exchanged between the different companies and the government relating to the construction of a new dry dock in the port of Quebec, since 1909.

5. Also for the production of all documents submitted by the different companies who have asked for the government grant provided by the Dry Dock Subsidies Act. Presented 29th April, 1913.—*Mr. Béland*.....*Not printed.*

204*a*. Dry dock of Lévis. Report of Mr. Charles Smith against Sampson, et al.—(*Senate*). *Not printed.*

204*b*. Return to an Address to His Royal Highness the Governor General of the 19th March, 1913, for a copy of all orders in council, plans and estimates, correspondence, papers and inquiries respecting the construction of a dry dock at Quebec or Lévis or in the port or harbour of Quebec. Presented 6th June, 1913.—*Mr. Lachance*....*Not printed.*

205. Return to an Order of the House of the 9th April, 1913, for a copy of the petition of the Restigouche Fishermen's Association to the Minister of Marine and Fisheries asking for the removal of Mr. M. M. Mowat, head guardian of the Restigouche Riparian Association as Dominion fishery officer, and the answer thereto. Presented 2nd May, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

206. Return to an Order of the House of the 13th February, 1913, for a return showing the name of the company who has the contract for the electric lighting of the government buildings and grounds in Ottawa, date of contract and period, on what notice can contract be cancelled, price paid per kilowatt hour for electric lighting, names of

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buildings lighted, cost of lighting each per year, rate for electric lighting if a combined power and light rate, price for current for power purposes, if lamps are not free, price paid for the carbon and tungsten lamps renewed, are lamps marked so as to be identified as belonging to the government buildings, number of electric lamp renewals paid for during the last fiscal year, where required, number of carbon and tungsten lamps respectively in use in the several buildings and the candle power or wattage of the same. Presented 2nd May, 1913.—*Mr. Wilson (Wentworth)*

Not printed.

207. Return to an Order of the House of the 17th February, 1913, for a copy of all correspondence, letters, telegrams, petitions, memoranda, reports, tenders, deposits, recommendations and all other documents of any nature whatsoever bearing on or having relation to the erection of a public building in the city of Three Rivers, P.Q., since the 11th day of October, 1911, to date. Presented 2nd May, 1913.—*Mr. Bureau.*

Not printed.

207*a*. Return to an Order of the House of the 26th May, 1913, for a copy of all papers, letters, and documents relating to the construction of a public building in the town of Laurentides, County of L'Assomption. Presented 4th June, 1913.—*Mr. Seguin.*

Not printed.

207*b*. Return to an Order of the House of the 2nd April, 1913, for a copy of all correspondence, letters, telegrams, contracts, tenders and reports of government inspector, in relation to the work and repairs on the public building at North Sydney during the year 1912, and particularly the inspector's report on the damages caused by fire during the construction of said works and repairs; and also a copy of the tenders of Henry Lovell, for the above work. Presented 6th June, 1913.—*Mr. McKenzie.*

Not printed.

207*c*. Return to an Order of the House of the 27th January, 1913, for a copy of all telegrams, letters, documents and plans relative to the purchase or acquirement of land for the purpose of erecting a public building in Stellarton, Nova Scotia, in the year 1912. Presented 6th June, 1913.—*Mr. Macdonald*.....*Not printed.*

208. Return to an Order of the House of the 24th February, 1913, for a return showing the names of the buildings occupied by the Government as public offices, which are under rent, excepting the Centre, East, West and Langevin Blocks; the street on which each of these offices is situated and the number of the street in each case. Presented 2nd May, 1913.—*Mr. Boulay*.....*Not printed.*

209. Return to an Order of the House of the 11th December, 1912, for a copy of all accounts, correspondence, telegrams, complaints and other documents in possession of the Department of Public Works, relating to the construction of telegraph lines during the year 1911-12, from South West Margaree to Scotsville, from Scotsville to North Ainslee; from Scotsville to South Lake Ainslee and Whycocomagh; from Little Narrows to Whycocomagh; from Rossville to Big Intervale and from Rossville to the Victoria County Boundary Line, all in the County of Inverness. Presented 2nd May, 1913 *Mr. Chisholm (Inverness)*.....*Not printed.*

210. Correspondence in connection with the area or areas prescribed for mange in British Columbia.—*Senate*).....*Not printed.*

211. Report made by the Central Railway of Canada to the Railway Department. (*Senate*).

Not printed.

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212. Return to an Address to His Royal Highness the Governor General of the 10th February, 1913, for a copy of all orders in council, letters, telegrams and of all other official documents of any kind in the possession of the Department of Customs, relating to the seizures of twenty horses from John Gobel, for smuggling them across the United States boundary near Coutts, or Writing-on-Stone, between the 20th and 28th of February, 1911. Presented 5th May, 1913.—*Mr. MacNutt*.....*Not printed.*

213. Return to an Address to His Royal Highness the Governor General of the 10th February, 1913, for a copy of all orders in council, letters, telegrams and of all other official documents of any kind in the possession of the Department of the Interior, relating to sale of school lands which have been held in the provinces of Alberta and Saskatchewan since the 12th day of October, 1911. Presented 7th May, 1913.—*Mr. McCraney*.....*Not printed.*

213*a*. Return to an Order of the House of the 2nd April, 1913, for a return showing by quarter-section, or fraction of quarter-section, all school lands sold in Manitoba, Saskatchewan and Alberta during the calendar year 1912; the price per acre at which each separate parcel was sold; the name and address of each purchaser; a list of all school lands sold at above sales which have since been cancelled; the price at which each parcel of said cancelled lands were sold, with the names and addresses of purchasers of each parcel of said lands sold and subsequently cancelled. Presented 23rd May, 1913.—*Mr. Turriff*.....*Not printed.*

213*b*. Return to an Order of the House of the 12th February, 1913, for a return showing all school lands sold in the province of Saskatchewan in 1912, giving each parcel of land sold, the name and address of each purchaser, the date and place of sale, the name of the auctioneer at each sale, and any assignments of contracts of purchase of which the government has notice, and a copy of all correspondence passing between the Government, or any member thereof, and the Government of the province of Saskatchewan or any member thereof, with respect to the sale of school lands in the said province. Presented 6th June, 1913.—*Mr. Martin (Regina)*.....*Not printed.*

214. Return to an Order of the House of the 9th April, 1913, for a copy of all petitions, affidavits, specifications, plans, drawings, claims, certificates, papers and patent rights in the Department of Agriculture or the Patents Branch thereof, with respect to Patent Number 142823. Presented 7th May, 1913.—*Mr. Carvell*.....*Not printed.*

215. Return to an Order of the House of the 28th April, 1913, for a copy of all memorials, petitions, and letters, addressed to or sent by the Minister of Agriculture, or on his behalf, in connection with the establishment of an agricultural school, model farm or demonstration station at New Carlisle, Quebec. Presented 9th May, 1913.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

216. Return to an Order of the House of the 28th April, 1913, for a copy of all telegrams, correspondence, returns, &c., between the Department of Agriculture, and any other person or persons, requesting recently that the Veterinary Director General of Canada visit Nova Scotia. Presented 9th May, 1913.—*Mr. Maclean (Halifax)*.
Not printed.

217. Extent to which the Franking privilege is used by the several provinces in Canada for statistics.—*(Senate)*.....*Not printed.*

218. Return to an Order of the House of the 29th January, 1913, for a copy of all diaries and other documents relating to and showing the work performed during the months of June and July, 1912, by Homestead Inspectors Rathwell and Erratt in the Moosejaw land district. Presented 16th May, 1913.—*Mr. Knowles*.....*Not printed.*

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218*a*. Return to an Order of the House of the 29th January, 1913, for a copy of all diaries relating to and showing the work performed during the months of June and July, 1912, by Homestead Inspectors Brandt, Balfour, Ouelette and Sipes, in the Regina land district. Presented 16th May, 1913.—*Mr. Martin (Regina)*.....*Not printed.*

218*b*. Return to an Order of the House of the 29th January, 1913, for a return showing the expenses of Homestead Inspectors Brandt, Balfour, Ouelette and Sipes during the months of June and July, 1912. Presented 16th May, 1913.—*Mr. Martin (Regina)*. *Not printed.*

218*c*. Return to an Order of the House of the 29th January, 1913, for a return showing the expenses of Homestead Inspector Miller of the Moosejaw land district during the months of June and July, 1912, together with a copy of all reports, proceedings, diaries and other documents, showing the work performed during the said time by the said homestead inspector. Presented 16th May, 1913.—*Mr. Knowles*.....*Not printed.*

218*d*. Return to an Order of the House of the 29th January, 1913, for a copy of all diaries and other documents relating to and showing the work performed during the months of June and July, 1912, by Homestead Inspectors Shields and McLaren, in the Swift Current lands district. Presented 23rd May, 1913.—*Mr. Knowles*.....*Not printed.*

218*e*. Return to an Order of the House of the 29th January, 1913, for a return showing the expenses of Homestead Inspectors Shields, McLaren, Erratt and Rathwell, during the months of June and July of 1912. Presented 26th May, 1913.—*Mr. Knowles.* *Not printed.*

219. Return to an Order of the House of the 26th March, 1913, for a copy of all papers, memoranda, and instructions relating to a certain area of land on the bank of Little Manitou Lake, Saskatchewan, recently transferred to the town of Waterous, for park purposes. Presented 16th May, 1913.—*Mr. Oliver*.....*Not printed.*

220. Return to an Order of the House, of the 4th December, 1912, for a copy of all correspondence and other documents in the possession of the Department of Public Works relating to the proposed interprovincial bridge between Hawkesbury, Ontario, and Grenville, Quebec. Presented 26th May, 1913.—*Mr. Proulx*.....*Not printed.*

221. Return to an Order of the House of the 1st April, 1913, for a copy of all complaints, charges, evidence and reports in connection with the investigation held at Aldershot, N.S., in September, 1912, relating to the alleged thefts of property from the militia camp. Presented 26th May, 1913.—*Mr. Kyte*.....*Not printed.*

221*a*. Return to an Order of the House of the 21st April, 1913, for a copy of all notices, tenders, contracts and correspondence relating to the supplying of ice for the military camp at Aldershot, N.S., for 1913, and of all correspondence relating to the source of such ice supply. Presented 26th May, 1913. *Mr. Kyte*.....*Not printed.*

222. Return to an Order of the House of the 17th February, 1913, for a copy of all letters, proposals, tenders, memoranda, papers and documents in the possession of the Department of Trade and Commerce, or any department of the Government, bearing date since 1st December, 1912, relating to steamship service between Canada and the West Indies. Presented 27th May, 1913.—*Mr. Maclean (Halifax)*.....*Not printed.*

222*a*. Return to an Order of the House of the 2nd April, 1913, for a copy of all correspondence, petitions, letters, telegrams, and other documents in the Department of Trade and Commerce, or any department of the Government, relating to the SS. service,

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between Mulgrave, County of Guysborough and Cheticamp, Inverness County, during the years 1910-11, 1911-12, and 1912-13, and the service to be continued during the year 1913-14. Presented 27th May, 1913.—*Mr. Chisholm (Inverness)*.....*Not printed.*

223. Return to an Order of the Senate calling upon the Clerk of the House to furnish a statement showing the number of Bills passed by the House of Commons since Confederation, which have been:—1. Amended by the Senate. 2. Rejected by the Senate. 3. Amended by the Senate and accepted by the Commons.—*(Senate)*.....*Not printed.*

224. Return to an Order of the House of the 14th May, 1913, showing whether a contract was passed by the Post Office Department in the year 1911, for the use of stamp vending machines, the terms of said contract, the date, and by whom signed. Presented 2nd June, 1913.—*Mr. Lemieux*.....*Not printed.*

225. Ordinances of the Yukon Territory, passed by the Yukon Council in the year 1913. Presented by Hon. Mr. Coderre, 2nd June, 1913.....*Not printed.*

226. Names of judges of Superior and Circuit Court in province of Quebec, date of appointment, &c.—*(Senate)*.....*Not printed.*

227. Return to an Order of the House of the 19th May, 1913, for a return showing the per capita taxation for the year ending 31st March, 1913, and for each of the twelve preceding years. Presented 3rd June, 1913—*Mr. Hughes (Kings, P.E.I.)*....*Not printed.*

228. Return to an Order of the House of the 29th May, 1913, for a return showing whether a certificate has been issued by the Treasury Board authorizing the transfer of the assets and liabilities of La Banque Internationale du Canada to the Home Bank; the terms of the said transfer, and all documents bearing on this question. Presented 3rd June, 1913.—*Mr. Lemieux*.....*Not printed.*

229. Report of the Canadian delegates to the International Conference, held at New York for the consideration of the Commemoration of the First Century of Peace between the United States and the British Empire. Presented by Hon. Mr. Borden, 5th June, 1913.....*Not printed.*

230. Return to an Address to His Royal Highness the Governor General of the 10th March, 1913, for a copy of all correspondence, memoranda, orders in council, departmental orders and reports from fishery overseers or other officers, during the past two years, relating to weir licenses in the waters of the Counties of Charlotte and St. John, Province of New Brunswick. Presented 6th June, 1913.—*Mr. Pugsley*.....*Not printed.*

231. Return to an Order of the House of the 24th February, 1913, for a copy of all letters and papers relating to the issue of half-breed scrip, warrant No. 2155, certificate No. 672, to Albert St. Denis, and the disposition of the said scrip. Presented 6th June, 1913.—*Mr. Oliver*.....*Not printed.*

232. Return to an Address to His Royal Highness the Governor General of the 3rd February, 1913, for a copy of all papers in connection with the withdrawal from settlement of a strip of land one mile in width along the line of the Hudson Bay Railway, and of the order in council, and also of all plans and correspondence in connection with the same, prior and subsequent thereto. Presented 6th June, 1913.—*Mr. Graham.* *Not printed.*

233. A return to an Order of the Senate dated 7th March, 1913, for a copy of all papers, letters, petitions, contracts and other papers relating in any way to the purchase of land at Le Pas for terminus of Hudson Bay road.—*(Senate)*.....*Not printed.*

ROYAL COMMISSION

ON

INDUSTRIAL TRAINING AND TECHNICAL EDUCATION

REPORT OF THE COMMISSIONERS

PART IV

PRINTED BY ORDER OF PARLIAMENT

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ROYAL COMMISSION ON INDUSTRIAL TRAINING AND TECHNICAL EDUCATION

OTTAWA, 31st May, 1913.

The Honourable T. W. CROTHERS, K.C., M.P.,
Minister of Labour.

SIR,—By direction of the Royal Commission on Industrial Training and Technical Education we most respectfully submit Part IV of the Report.

JAS. W. ROBERTSON,
Chairman.

THOS. BENGOUGH,
Secretary.

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INQUIRY IN CANADA.

CHAPTER I: INTRODUCTORY.

The Commission visited the chief industrial and commercial centres throughout Canada, beginning at Halifax, N. S., on July, 18th, 1910, crossing the Dominion to Vancouver Island, and practically completing the enquiry in Canada by February, 1911. Itineraries were drawn up, and notifications of the intended visits were sent in advance to the Mayor, to the President or Chairman of the Board of Trade, and to other persons in each locality directly engaged in, or concerned with, industries and education.

The following places were visited:—

Nova Scotia.

Halifax, Dartmouth, Lunenburg, Liverpool, Bridgewater, Yarmouth, Digby, Middleton, Wolfville, Windsor, Truro, Sydney, Glace Bay, North Sydney, Sydney Mines, Baddeck, Antigonish, New Glasgow, Stellarton, Westville, Pictou.

Prince Edward Island.

Charlottetown, Hillsborough, Summerside.

New Brunswick.

Amherst, Springhill, Sackville, Moncton, Sussex, Hampton, St. John, Fredericton; Woodstock, Chatham.

Quebec.

Montreal and District, Macdonald College, Quebec, Three Rivers, Shawinigan Falls, Joliette, St. Hyacinthe, Victoriaville, Arthabaskaville, Sherbrooke, Hull. (Visits to Grand Mere and Sorel were cancelled owing to weather conditions which prevented making connections for the dates appointed.)

Ontario.

St. Catharines, Paris, Collingwood, Woodstock, Goderich, Listowel, Owen Sound, Barrie, Orillia, Lindsay, Oshawa, Cobourg, Cornwall, Smith's Falls, Ottawa, Brockville, Kingston, Belleville, Peterborough, Toronto, Hamilton, Niagara Falls, Simcoe, Brantford, Galt, Guelph, Berlin, Stratford, London, St. Thomas, Chatham, Windsor, Walkerville, Port Arthur, Fort William, Sault Ste. Marie.

Manitoba.

Winnipeg, Portage la Prairie, Brandon.

Saskatchewan.

Moosejaw, Regina, Saskatoon, Prince Albert.

Alberta.

Edmonton, Strathcona, Calgary, Lethbridge, Medicine Hat.

British Columbia.

Vancouver, New Westminster, Nanaimo, Victoria, Fernie, Nelson, Vernon.

EXTENT OF THE INQUIRY.

Altogether the Commission visited 100 places (cities, towns and localities) and held 175 sessions to receive testimony. It has transcripts of the evidence of 1471 men and women. Some of these occupy foremost positions in industries, agriculture, mining, lumbering and fishing. Others are engaged in educational work; they include Superintendents of Education, principals of Universities and Colleges, and teachers in institutions and schools of all grades. Others represent various trades, occupations, and housekeeping. The transcript of the evidence received during the 175 sessions, besides the notes taken by the members of the Commission on the occasion of their visits to the various industrial establishments and educational institutions, amounts to over 4,000 typewritten foolscap pages. Moreover, written memoranda, to the number of nearly 200, were received from witnesses.

Cordial Co-operations.

In every province the Commission was received by the Premier, with other members of the Provincial Cabinet, or by some member of the Cabinet. In every Province the Commission received assurances of goodwill, and enjoyed the benefit of cheerful co-operation from all the Provincial authorities.

The Commission was usually met on its arrival at a town by the Mayor and the members of the Reception Committee, representing the City or Town Council, the Board of Trade, the Manufacturers' Association, educational institutions, and the Labor organizations.

The Commission visited industrial establishments and educational institutions during either the forenoons or the afternoons, or both. Sessions for receiving testimony were held during the evenings, and when not occupied as indicated, during the afternoons or forenoons.

Usually a list had been obtained from the local committee of representative men and women, who were prepared to testify regarding the need and present equipment of the place in respect to industrial training and technical education. The statements were taken under oath or solemn affirmation. The information

was usually secured by means of question and answer. The witness was given an opportunity to make any statement bearing on the matters enquired into, and to supplement oral testimony by a written statement. Many of the persons occupying the most important positions in industrial activities and educational administration were requested to furnish written memoranda. Opportunity was given to any person who desired to offer testimony, either orally or in writing. No one was summoned officially to appear before the Commission. Invitations were extended to representative men and women. Those who testified did so with evident frankness, and appeared satisfied that they had thereby contributed something useful in respect to Industrial Training and Technical Education, and in regard to the needs of the industries and the needs of the young people and workers of the locality.

Industrial Development Found to be General.

The members of the Commission were impressed by the numbers of thriving industries in comparatively small towns. Throughout all the eastern Provinces many establishments where visited, from which the products were being shipped throughout the whole of Canada. These towns enjoyed no special shipping facilities or any apparent advantages in regard to cheap power or nearnes to raw material. The enterprise, ability and energy of a few men had enabled them to make the beginning upon a small scale from which businesses employing from 50 to 200 persons have grown up. Factories were situated where abundance of fresh air and light prevailed, and where the workmen could provide homes under favorable conditions for their children. Instances which are typical and not exceptional may be mentioned.

A furniture factory located at Windsor, N.S., was shipping its Products throughout Canada, nearly one-half to the west of Winnipeg, and a portion to Newfoundland. Windsor, N.S., is not even on the main line of a through railway. At Truro, N.S., a cap factory, reported to be turning out nearly one-half of the caps required by the Canadian trade, was making headway under all existing competitions.

At Charlottetown, P.E.I., a machine shop was turning out gasoline engines, one-half of which were being shipped west of Winnipeg. About 100 men were employed and they were working overtime.

At Sackville, N.B., a stove works was doing a local trade and also supplying its products throughout the Northwest. The manager stated that favorable local conditions for the workmen enabled him to increase the business.

At Fredericton, N.B., a shoe factory employing over 100 persons was shipping boots and shoes to Montreal, to Moosejaw and other points in the West.

At Victoriaville, Que., four prosperous industries—furniture, chairs, iron bedsteads, clothing—were reported to have grown up within seven years. The products from each were being shipped all over Canada, in each case about one-half to points west of Winnipeg. On the occasion of the Commission's visit one carload at each of two factories was loaded for Vancouver, B.C.

Instances of similar development and extension of trade could be cited from

a score of places in Ontario. It has been made evident that the industrial development of Canada has been going on not only in the larger towns and cities.

The Commission observed the establishment and growth of comparatively new industries, whose managers testified that they required increasing numbers of highly skilled and technically trained workers, as for example, electrical works and automobile factories.

As to Present Equipment.

In conducting the enquiry and in making the records, the Commission sought to gather information regarding the kinds of provision which existed for Industrial Training and Technical Education in the place visited, rather than to collect statistical data of the number of pupils receiving instruction in any kind of class or classes. The enquiry was directed to discover whether the existing provisions were efficacious and adequate for the training of the children, the youth and the adult workers of the place, and if not, what, in the judgment of those who testified, could and should be provided.

Arranging the Information Obtained.

In arranging the material to be published as Part IV of the Report, it seemed that no good service could be rendered by the publication of the record of the testimony itself in full, and that it was unnecessary to describe the educational institutions visited in the several places with as great detail as the educational institutions which were visited and reported upon in other countries. In a few cases, where clearness of presentation required it, the latter course was followed. The information obtained from the witnesses connected with educational institutions, is to be taken as supplementing the printed documents issued by the several Departments or institutions, and as containing the witness's explanation or interpretation of what was being done, or should be done, in relation to Industrial Training and Technical Education.

In a few typical cases, where the testimony of men who control industries shed light upon the establishment, progress or management of an industry in such a way as to be illuminating and beneficial to Canada, considerable space has been given to it. In general, there was so much likeness and agreement in the opinions of those who control the various industries, as to the requirements of the workers for Industrial Training and Technical Education, that the records of these have been condensed or arranged in terms which include them all.

Personal Narratives of Training.

In some cases where a witness gave a statement of the training and experience which in his opinion had been suitable and adequate for his occupation, a condensed narrative has been prepared for publication. It was learned that it would be more agreeable to some witnesses not to have their names published in such narratives.

The Attitude of Organized Labor.

What has been said in regard to the testimony of those who control the industries, applies equally to the testimony of the employees, and of those who came before the Commission as representatives of organized Labor. No attempt was made to obtain formal resolutions of Labor bodies; but in practically every case the question was asked of those who appeared as representing organized Labor, whether they personally, and the Union which they represented, were in favor of adequate provision being made for Industrial Training and Technical Education for the workers. Without a single exception, they expressed themselves as being favorable towards Industrial Training and Technical Education as a public service, and desirous of seeing adequate provision made in the locality for the needs of all the workers.

Records of Inquiry at Two Places.

The records of the Commission's inquiry at two places—Berlin, Ontario, and Ste. Hyacinthe, Quebec—are given practically in full as being typical and illustrative of much of the testimony received at other places.

SOME GENERALIZATIONS FROM TESTIMONY.

In general the testimony was to the effect that provision, for the systematic Industrial Training and Technical Education of handworkers and foremen, exists in comparatively few places, and in them not to an extent adequate to the needs of the industrial population.

The system of training young men and women as apprentices, is becoming less common than formerly. In some trades it has disappeared as a system and learners are expected and required to pick up the trade as best they can. The introduction and use of machinery where hand labor was formerly employed is given as one of the chief causes for the change. In a few shops, notably the shops of the railway companies, instruction classes and systematic instruction in the shops and at machines have been provided to meet the new conditions.

The rapid development of the country and the growth of towns and cities, have provided the lure of relatively high wages for boys and girls of 14 years and younger. That attracts them to leave school early. Frequently such young people accept places and begin work for which little training is required and in which experience does not lead to the acquisition of ability or skill in a trade or occupation which affords permanent employment or is suitable for mature years. Many witnesses were of the opinion that at least part of a remedy would come through schools or courses of study which provided more hand work of a constructive kind.

A great deal of testimony was received indicating that properly organized hand-and-eye-training with constructive work, was helpful in developing the powers of children from the kindergarten classes upwards. The teachers who had experience spoke highly of its value in qualifying the children to take up bench and table work in Manual Training and Domestic Science in later years; they also testified

that the hand work contributed to the progress of the pupils in what are called book studies.

Those opinions found confirmation in the practice of schools observed in other countries, notably Munich in Germany, Edinburgh in Scotland, Leeds in England and Rochester in the State of New York.

Those who Know the Trades Wanted as Instructors.

Much practical and useful information was obtained from skilled workers as to the nature of the Courses in Continuation Classes which would be most advantageous and the kind of instruction which would be most helpful. A strong preference was expressed for instruction from "practical men" and women who knew the trade. The Commission had that testimony in mind when its Recommendations as to the Provisions for Industrial Training and Technical Education, contained in Chapter VII of Part II of the Report, were being formulated.

The Testimony of the Farmers.

In preparing for publication the material which was presented to the Commission in connection with the Industrial Training and Technical Education of those engaged in agricultural and other rural occupations, a similar course was followed.

The farmers who appeared before the Commission were earnest in their convictions of their own needs, the needs of their children and the needs of their occupation, although they were not correspondingly clear or definite as to the means whereby these needs could be met through educational provisions. They were in agreement as to the advantages of specific knowledge regarding plants, seeds, soils, cultivation, rotations, manuring, live stock, etc. Not many of them had given thought to what was possible in the way of training the judgment of young people as to the best methods of applying, to the farming of the locality, such knowledge as might be acquired through classes, courses, reading, or other forms of instruction.

Nor did the Commission obtain many definite opinions as to means by which practical skill in the performing of farming operations could be developed more generally. By some it was hoped, rather than asserted, that Manual Training and work in the School Garden gave young people such ability in the use of tools and such a general desire for neatness and tidiness, that they were important factors in developing skill in doing farm work. Competitions, such as ploughing matches, field crop competitions, and children's work at agricultural exhibitions, were all cited as means whereby pride and satisfaction in the doing of the work itself, and in the quality of the work itself, as distinct from the financial returns from it, would be cultivated and accomplish a good deal.

To Keep the Young People in the Country.

A general opinion on the part of the farmers who appeared before the Commission was, that the young people at and before the age of leaving school were less

interested in farm work and rural affairs than formerly. The remedy for that state of affairs was believed to lie in a change in the dominant object of the rural school. To the teachers and pupils the prime object has been lessons from books, and these often learned in order to pass examinations that had little vital relation to knowledge or ability applicable to farm life. The witnesses generally were of opinion that the school work of the pupils, in the lessons from books and in other respects such as Nature Study and School Gardening, should bring and keep the rural school more in touch with the homes and farms. What the Commission found was being done in this respect in other countries is reported on in Chapter IX of Part II of the Report.

Desire for Co-operations.

Some testimony was received, much of it indefinite, in content of both knowledge and opinion, as to what was desired and what may be expected from Co-operation in rural communities. It was stated to the Commission that there would be advantage through Co-operation, in connection with the business of the farms, in selling and buying. It was stated also that benefit had come to farmers from discussions at Farmers' Institutes and other meetings on methods of managing farms. Some information was obtained as to beginnings that had been made in the way of co-operation in planning the management of farms, by the farmers going together over their several farms and discussing together their systems and methods of conducting work.

Witnesses expressed a desire for such co-operation among the people of the localities as would develop more agreeable and satisfying social opportunities for people out in the country. Some hope was expressed that Consolidated Rural Schools would become centres from which co-operation in respect to the three matters indicated might grow, viz., co-operation among the farmers in the business of buying and selling; co-operation in planning for the management of the farms; and co-operation in providing and improving social opportunities.

Social Satisfactions in Rural Districts.

In earlier days, singing schools, debating clubs, "bees", were instances of social gatherings. Under modern conditions, specific occasions for social gatherings are not so common or obvious as they were. Whether the formation of Neighbourhood Improvement Associations, meeting from time to time for specific purposes such as, consideration of the farming, the housekeeping, the education, the handicrafts of the locality, suitable games and recreations, singing, literary culture, and exchange visits with other Neighbourhood Improvement Associations, would meet the need and do good, was not pronounced upon by witnesses who appeared before the Commission; but the need for some means of enriching the social life of country districts was represented as urgent. That was in the mind of the Commission when studying the means whereby rural communities in the older civilisations were carrying on their education and rural life.

As to Housekeeping Occupations.

In preparing for publication the material in respect to Housekeeping Occupations, a similar plan has been followed. There was so much similarity in the testimony of those who appeared before the Commission in respect to domestic employments, that the testimony in one Province may be taken as representative of the convictions and attitude of the women of Canada. Some of the testimony submitted has already been presented in Chapter X, on "Education for Housekeeping Occupations", in Part II of the Report.

Conditions for Work and Recreation.

A good deal of evidence was presented to the Commission indicating that increasing attention is being given to the conditions under which occupations are carried on, and that more care is being taken that these shall be wholesome in respect to ventilation, suitable in regard to lighting and comfortable in respect to temperature.

The Commission did not receive any testimony which indicated that communities, as such, were active in organizing opportunities for the regular and adequate recreation of industrial workers in towns or young people in rural communities. When the question was discussed by witnesses, there was no difference of opinion on their part regarding the advantage to the individual, and afterwards to the occupation, from a suitable period and kind of recreation. A frequent statement made before the Commission was that "care should be taken as to the physical and mental welfare of the workers, otherwise they could not turn out goods properly". The stress seemed to be laid upon the quality of the marketable material, and not upon the quality of life in the worker.

The testimony of the factory workers particularly, indicated their opinion that over the whole field of industry there was a keen struggle for success as measured by immediate profits, that often the interests of the workers were lost sight of, and that returns on capital, and not the welfare of the community, were chiefly considered.

Y. M. C. A. Appreciated.

The Commission learned on all sides, directly from representatives of the Y.M.C.A.'s, and from employers and employed, of the excellent work carried on by Y.M.C. Associations in classes for general subjects, drawing, technical instruction, physical culture and singing. Such work has not been competitive with that of School Boards or private educational institutions, but has supplemented what they have done, and met the needs of those who for one reason or another did not avail themselves of other opportunities.

Usefulness of Libraries.

Testimony was received as to the usefulness of libraries and librarians in the technical education of workers. In many libraries special lists of books,

dealing with the industries of the place, were prepared and put at the service of workers. In other cases the librarian was known to be available for advice as to books and reading upon technical subjects dealing with the occupations of the area served by it.

Wastes and Losses After 14.

It was generally regarded that systematic education which comes to an end about the age of 14 is incomplete and, in view of the formation of character and the learning of some occupation by the boy and girl during the next 3 years, deeply unsatisfactory. Without attendance at a Continuation School or a School of some kind, the young person is represented as losing much of the effect of his previous education, and at the same time missing the growth of intellectual interests and particular training for the occupation which he follows. Such good and necessary habits as those of obedience, regularity, punctuality and diligence, which are among the first-fruits of the ordinary school education, are in a measure lost unless some school or educational contact helps to keep them vital from 14 to 17 years of age.

The impression left upon the Commission from the testimony, alike of employers and parents, was that all boys from 14 to 17 years of age need supervision, require some definite training, and should be able to see before them, as manhood and its responsibilities approach, the prospect of an opening in some form of occupation where a good living may be earned, and where diligence, aptitude and earnestness may win fitting rewards.

Evening Classes Must be Attractive.

Those who had considered the question were not hopeful that a large proportion of the young people in Canada who have left school and are at work, would voluntarily go to Evening Classes unless these were of a highly attractive and almost entertaining kind. The opinion generally expressed was, that where the classes entertained or interested the young people, there would be no injury to their growth or health by attendance two or three evenings a week. The difference in the kind of attention and mental effort called for, from those who were fatigued by the occupations of the day, would make some kinds of classes recreational, while also educational. What has been said regarding the attractiveness, or entertaining quality, of classes refers particularly to classes for those who are from 14 to 17 years of age. It was stated that after that age workers would more generally recognize the advantage to themselves from further training, and have a more serious and earnest attitude towards such work.

Kinds of Provisions Required.

The training required to fit a boy for a trade was spoken of as of two kinds, one general and the other special. The general training develops mental and physical qualities of alertness, intelligence, adaptability, and the other gives specific

instruction and definite training in the principles and practice of some particular industry or branch of industry in such a way as to produce a skilful worker.

The testimony was substantially unanimous in indicating that in respect to Industrial Training and Technical Education the following are among the pressing needs of the people:

1. Some opportunity in all schools for boys when they are past twelve, whereby the boy will gain experience in constructive hand work as well as book work and thus reveal to himself and his teacher and parents the bent of his ability to an extent that will give an indication of what he should choose, and how he should prepare, for his life's work.

2. Provision for the boys, from twelve to sixteen years of age who intend to go into some skilled trade, to learn in school how to use common hand tools for wood and iron working and to receive instruction in the qualities of materials which are fundamental to the common industrial occupations.

3. Courses or schools, of High School or Academy grade, adapted to the boys who are going into industrial and commercial life. Such schools or courses to give them preparation for their futnre work equivalent to what the present High Schools give to the boys going into the professions.

4. Some education to make up to the boy, after he begins to work, for what he does not now get through lack of an apprenticeship system; some forenoon, afternoon or evening classes to give him the further knowledge of mathematics and mechanical principles; and also some variety of shop work, to develop the skill of hand and the all-round ability in some trade, which the apprentices formerly got by their long and practical training. The manufacturers and other employers of labor have expressed a willingness to co-operate in helping to make such classes and courses effective.

5. Evening schools for workmen in the smaller cities and towns to fit them for advancement and promotion.

6. Some enlargement and improvements of the means whereby farmers' children may learn the elements of the scientific principles which underlie rural occupations such as the growing of crops, the feeding of live stock, the fighting of weeds, insects and plant diseases, and the maintenance of fertility and beauty; and the same in more advanced forms suited to the farmers themselves.

7. Instruction—the means and opportunity for instruction—of a similar character suited to the lives and occupations of the fisherfolk, and those engaged in the mining industries.

8. Classes and courses for the training of girls and women to give them clear concepts of the sanitary conditions which make for the safety, comfort and economy of the home, correct ideas of economical ways of providing food and garments and of using fuels; and some practice in domestic art that will further enable them to reveal and enjoy their love of the beautiful by making beautiful things for the house.

9. Correspondence study courses for persons who are unable to avail themselves of schools and classes; and the provision of visiting instructors in connection therewith.

In this connection it is to be noted that, from the many statements made to the Commission, it would appear that several hundred thousand dollars per annum have been paid by Canadians for correspondence courses provided by American institutions. Those who had taken the courses, or were taking them, testified that they derived benefit; although only a small percentage of the number appear to have carried the work through to the end of the course.

10. Intimate correlations and co-operations between those who manage industries and factories, the men and women most skilled in their trades and occupations, and the managers of the schools and classes where workers are trained.

Widespread Expectations.

The survey made by the Commission revealed a great measure of interest throughout the whole of Canada in the subject of Industrial Training and Technical Education.

The representatives of all occupations and interests, who testified, gave the Commission the impression that they expect further action to be taken in the near future in all the Provinces, such as will in result in meeting the needs which have been indicated by their testimony.

Persons, occupying important and influential positions in industry and education, expressed the opinion that the Dominion Government should assist in developing Industrial Training and Technical Education by granting financial assistance.

RESOLUTION BY A PROVINCIAL ASSEMBLY.

The Commission received a copy of the following resolution with the statement that it was passed unanimously by the House of Assembly, New Brunswick, in its session of 1912, on motion Mr. Hatheway, seconded by Mr MacLachlan.

Whereas The increase of the material wealth of Canada depends almost entirely on—

1st. The skill and science with which the farmer cultivates the land and produces his crops.

2nd. The careful work and knowledge of the miner and the lumberer in their several avocations.

3rd. The special skill and effic ency whereby the mechanical and other artisans transfer raw materials into finished and useful products.

And Whereas, The Dominion Manufacturers' Association and all its branches, the different Trades and Labor Congresses since 1900, and also the numerous Boards of Trade throughout Canada, have been continually urging the Dominion Government to investigate the needs of Technical and Agricultural Education in Canada in order to improve the skill and efficiency of the farmer, mechanic and all other artisans.

And Whereas, The Public School Systems of the different Provinces do not tend enough towards furnishing the masses of the people with either Agricultural or Industrial Education.

Therefore Resolved, That it is the opinion of this Legislature—

1st. That the Federal Government of Canada should appropriate annually for the next ten years the sum of $4,000,000 a year to be expended solely upon Agricultural and Industrial Education.

2nd. That such sum of $4,000,000 a year be paid over by the Federal Government through the Minister of to the Government of each Province of the Dominion in sums pro rata to the population of each Province, as shown in the census of 1911.

3rd. That each Province of the Dominion pledge itself to expend such sum solely and only for Agricultural Education by means of Agricultural Schools, Farms or Colleges, and for Technical Education of the miner, the lumberman and the mechanic by means of Manual Training, Technical Schools, High Schools and Colleges.

4th. That each Province appoint one of its Cabinet who will annually make his report to the Minister of Ottawa, showing in detail where and how such sums have been expended.

And further Resolved, That copies of this Resolution be sent to the members of the Legislatures of all the other Provinces of this Dominion, asking their co-operation and asking them to forward a similar Resolution to the Dominion Government.

And Further Resolved, That copies of this Resolution be sent to all the members of the House of Commons and the Senate of Canada.

SESSIONAL PAPER No. 191d

NOVA SCOTIA.

CHAPTER II: OUTLINE OF THE EDUCATIONAL SYSTEM.

SECTION 1: ORGANIZATION AND ADMINISTRATION.

Information obtained from Dr. A. H. MacKay, Superintendent of Education, supplemented by official reports.

Education in the Province of Nova Scotia is controlled by the Council of Public Instruction, which consists of the Executive of the Provincial Government. This Council regulates expenditures of funds, classification of teachers, books, programs, management of the Normal and Technical Colleges, Academies and Schools, inspectors, examiners, local managers and educational matters generally. Since 1908 there has been an Advisory Board comprising 5 members appointed by the Government, and 2 elected every two years by members of the Provincial Educational Associat on.

The Superintendent of Education is appointed by the Lieutenant-Governor in Council, and is Secretary of the Council of Public Instruction. The Director of Technical Education, who is also Principal of the Technical College, is appointed by the Lieutenant-Governor in Council, and is under the direction of the Council of Public Instruction. The 12 Inspectors, appointed by the Council of Public Instruction on the recommendation of the Superintendent, form practically 12 local branches of the Education Office; they exercise large administrative authority, being ex-officio Secretaries of the 33 District Boards. Each Inspector has about 200 school departments under supervision,.

The system in Nova Scotia consists of (1) Common School Course of 8 years—grades 1 to 8, and (2) High School Course of 4 years—grades 9 to 12. The High Schools are simply the Public Schools from grades 9 to 12, to which the Common Schools lead directly without any hiatus, the whole forming a 12 years' course articulating with the Universities, Normal College and teaching profession, and with special schools and institutions. The High School program allows numerous options.

The "Common" schools are supported by funds from three sources:—

(1) Sectional Assessment, which is the main support. The school trustees present their estimates for the year to ratepayers who assemble at annual meetings and in parl amentary fashion vote the amount to be levied on the section for all school purposes, also elect new trustees, etc. The total vote levied and collected in 1912, was $859,284, an increase of $55,159 over 1911.

(2) Grants for Municipal (County) School Fund. Each of the 24 Rural Municipalities levied 35c on the Municipality for each of the population according to the latest census. This amount is levied on the assessable property and collected with other municipal rates, the fund being paid out to School Boards on the order of the Superintendent at the end of the school year as follows:

(a) $25 for each teacher employed.

(b) The balance to be distributed in proportion to the attendance of pupils in each School Section after allotting $100 for every pupil from the municipality attending institutions for deaf, dumb and blind

(3) The Provincial Aid, consisting of grants to 5 classes of teachers employed in local schools, based on professional training and attainment of the following grades of scholarship:

Grade 9, $60; 10, $90; 11, $120; 12, $150.

For Academic Class (Scholarship, University Degree), the grant is from $180 to $210. To those who hold a Rural Science License and are teaching an approved course in a Rural School with a School Garden equipment $15, $30, $60 or $90 additional, according to character of qualifications and work. Kindergarten teachers can qualify for any except the Academic branch. In 1912 the total amount of Provincial Aid to teachers was $228,570.

Salaries of male teachers are supplemented by an allowance from the Dominion Department of Militia and Defence, when they instruct Cadet Corps. The Teachers' Annuity system enables a teacher to retire, with the continuation of the Provincial Aid, after 35 years of service, or at 60 years of age, or in the case of disability after 20 years' service. This may be supplemented by the School Sections, or (as in Halifax) by contributions from the teachers.

Specialist Teachers.

In connection with the Public School system in Nova Scotia, there are special teachers in Manual Training, divisible into three classes, (1) Mechanic Science, (2) Domestic Science, (3) Rural Science.

Mechanic Science.

This is similar to what is called Manual Training in other provinces. It is mainly woodwork, and is taken by boys in the 7th and 8th grades.

Cardboard work has also been introduced, and in the Kindergarten more elementary forms are being developed. It is intended to take some of this work in the High Schools, but as the Province is not very wealthy, and in many places not very prosperous, and teachers are only beginning to receive preparation, the Department does not expect rapid extension.

In Halifax every pupil has opportunity of taking Mechanic Science and Domestic Science, for which special accommodation is made. In Sydney, Glace Bay, North Bay, Pictou, and New Glasgow buildings are devoted exclusively to that work. High School pupils in many places take those courses when they have the opportunity.

It is found that Mechanic Science, while increasing the usefulness of boys in fixing things up about the house, does not interfere with the progress in academic work. Some teachers say that it stimulates the pupil, and Superintendent MacKay has heard it said, that the severest punishment would be to prevent a pupil from attending a Manual Training class, because they prefer that work to ordinary school work.

All teachers passing through the Normal College take the ordinary Mechanic Science course, so that they may be able to do such work as pupils are expected to do in school. Hence, they can teach Mechanic Science, or Rural Science or Domestic Science, in small communities without an expert being required.

There was a time when every teacher in training (women as well as men) at the Normal College took Mechanic Science. The Provincial grant enables any locality to purchase the equipment prescribed by the regulations.

Rural Science.

Rural Science is specially for country schools, because in rural places with small populations, it is too expensive to establish Mechanic or Domestic Science. Regulations advise that Rural Schools should have at least a bench, in a small annex to the school room, and many schools have one or two benches where pupils can work during noon hour, taking part of their play time.

Grants are given teachers who have taken the diploma at the Rural Science School, and have conducted a school garden up to one of three standards, the higher being for superior work which is really of agricultural value, the two lower laying the foundation. This allows the smallest school to do a little, while the largest school can have a more developed department and do more extensive work. All the students at the Rural Science School at Truro are studying with a view to this work

Manual Training.

Since 1900 Manual Training Schools are of two kinds:—

(1) Mechanic Science, mostly attended by boys, maximum annual Provincial grant for school, $600. The total estimated expenditure in 1912 on these schools was $11,184, of which $4,528 came from the Provincial grant.

(2) Domestic Science, mostly attended by girls, maximum annual grant $300 per school, estimated expenditure in 1912, $8,979, of which $4,905 was from Provincial grant.

The Government gives a pro-rata grant, maximum $300, for Mechanic Science and Domestic Science teachers, having a certain number of pupils. In many cases this is the largest portion of the salary, and is a very large grant compared to that given to ordinary teachers, who receive only from $60 to $120 or $150 in case of superior schools. The Provincial Government thus gives as much assistance to these three branches which relate to Industrial Training, as to any other part of the school work.

THE TECHNICAL COLLEGE, THE UNIVERSITIES AND THE TEACHERS.

The Technical and Mining Schools are of still later origin than the Manual Training Schools. The Technical College, with its staff of 6 professors and other assistants, being affiliated with the various Universities in the provinces of Nova Scotia and New Brunswick, which have adopted the standards of admission and study, for the first and second years, has to deal only with the third and fourth years.

University co-operation is further stimulated by a new testing examination established by the Council of Public Instruction for University graduates as the scholarship basis of the highest class teacher's license, called the Academic.

With a view to avoiding the waste of High Schools overlapping the work of the numerous and unequal institutions enjoying University privileges, graduates of Universities which require a four years' course after matriculation from the Public Schools (fourth year of the High School) are eligible for this examination on 6 of the more essential University subjects. The passes in the University are accepted for other necessary subjects, such as psychology, philosophy and sociological and historical courses. As most of the Universities in Nova Scotia are under denominational control, and their views of history and philosophy might differ, the Department does not give examinations in those subjects.

Thus each University will be standardised, and required to keep to the same standard in order to be recognized. It is hoped that these graduates, who are becoming numerous, (the attendance at the Universities being over 1000) will man the High Schools of the Province, and educated men at the head of the County Academies, who have had the benefit of University, Technical College or Agricultural College training, will be able to plan courses for the Academies that will suit the necessities of the Province better than anything the Department has been able to arrange in the past.

The Department is moving to simplify the mechanics of education, throwing out from the courses anything that kept the teachers back, and laying stress on essentials, being guided to some extent as to what the people need by Dominion Government returns, showing the numbers of people engaged in various callings. Teachers are encouraged to prepare themselves to give practical instruction in Nature Study, leading up to an appreciation of the underlying principles of technical education of all kinds. The Collegiate Agricultural Course is to be used in training teachers for the Rural Science Diploma, and any High School is allowed to establish a commercial course with book-keeping, shorthand and other subjects, as is done in Halifax.

Additions are made to High School work in the form of technical schools in all the principal towns, doing such work as they need in coal mining centres, teaching coal mining and engineering, etc., and in towns where there is a large body of labor, which might not be benefited by special technical education, provision will be made for them

THE NORMAL COLLEGE.

The Normal College, situated in Truro, opened in 1855, as a Provincial Normal

School. Until 1893, it was simply one of the various institutions (High Schools, Academies and Colleges) which train for teachers' licenses, but since then the level of Normal Training has been raised, and candidates must attain scholarship standard in High School or elsewhere, the Normal College being a Professional Training School. Courses in Mechanic Science for males, and Domestic Science for females are compulsory.

The College of Agriculture.

The College of Agriculture was opened in Truro in 1885 as the Provincial School of Agriculture in affiliation with the Provincial Normal School to develop the industrial side of the teachers' training. After its destruction by fire in 1898, the present College of Agriculture was opened in 1905, having absorbed the School of Agriculture started in Wolfville in 1893, and vastly extended its range of work, still retaining affiliation with the Normal College. Agricultural Education belongs to the Department of Agriculture, under the same Minister as the Department of Education. Summer Schools are subsidized and encouraged by the Government.

The Summer Schools of Science.

The Summer School of Science for the Atlantic Provinces originated in 1887, and is held in a different place each year for three weeks during vacation, receiving a small grant from the Education Department. In 1910 about 500 teachers from the Maritime Provinces attended such schools voluntarily and mostly at their own expense. 250 teachers, many of them from Nova Scotia, attended the summer School of Science at Liverpool, nearly ¼ of them taking Nature Study; while at Truro another 100 were attending the Rural Science School. The third Summer School was held under the direction of St. Francis Xavier College at Antigonish, one of the first University Colleges to secure this work.

Since 1908 the Rural Science School has been conducted at Truro, at the Agricultural College, for six weeks in summer under the joint administration of the Agricultural and Normal Colleges, with the object of developing a kind of instruction more suited to rural conditions, in which teachers can qualify during vacation. The Provincial Government controls the school, charges no fees, and pays the minimum travelling expenses of teachers to and from Truro.

Various Educational Agencies.

Teachers' Institutes are held in different inspectoral divisions in alternate years, with the Provincial Educational Association which meets every two years.

The Nova Scotia Institute of Science and the Mining and Historical Societies receive grants from the Province and report annually to the Department.

Schools for the Deaf and Dumb and the Blind, also Reformatory and Industrial Schools for Incorrigibles, are located at Halifax, and receive educational aid.

The Victoria School of Art and Design at Halifax, was incorporated in 1888, has an endowment fund of about $8,000, and receives a Provincial grant of $800 and a city grant of $500. Its policy is to encourage a taste for art in all its branches, and no one is refused admission to the class on the score of poverty. It devotes special attention to good taste in building, furniture, designs on book-covers, advertising, and scores of minor industries, the manufacturing and architectural classes having been taken over by the Technical College.

SECTION 2: THE PUBLIC SCHOOL COURSE OF STUDY.

A Committee of 16, appointed in 1906 by the Provincial Educational Association, revised the Common School course and effected a close correlation between the Common and High Schools. In a very comprehensive report they ably discussed, among other subjects, the function of the public schools as elementary technical schools, and what school studies should be. The following is a summary of the report in so far as it bears directly upon the enquiry of this Commission:—

As education proceeds from and builds on the past experiences of the learner, and from those states of mind which are likely to arouse curiosity or awaken feeling, every lesson should seek to be a renewal and an increase of that connected store of experience which becomes knowledge, emotion, taste, will, in short, character and culture, which fit a child for good citizenship, create and foster aptitude for work and for intelligent use of leisure, and develop those features of character most readily caused by school life, such as loyalty to comrades and institutions, unselfishness, and an orderly and disciplined habit of mind.

Hence it follows that the value of any branch or lesson lies only partly in its direct intrinsic utility; over and above this should be the increased disposition in the pupil to act for himself and on his own initiative, not only in school problems, but in all matters where some relation to the thing taught suggests itself. For example, though a lesson on the life-history of the cabbage butterfly may have no direct value to the children of a fruit-growing district, yet when effectively taught it is fertile in suggestions of similar problems and study processes. The effectiveness of teaching can be largely measured by the intensity of the stimulus it gives to the study of related problems lying within the field in which lie the child's interest and natural activities.

In this sense the Common and High Schools should in large measure function as the elementary technical schools of the Province. Vocational training is capable of being made cultural to a certain extent, just as a vocation is practised not for itself alone, but in all its relations and implications—social, moral, domestic and sometimes esthetic and traditional. Preparation for vocation does not exclude direct and purposive efforts of a purely intellectual character; on the contrary, these must continue to form a considerable part of the school program, because the intellectual, social and spiritual qualities, they are specifically designed to nourish, will never cease to be regarded as the finest fruits of education.

What has been fundamentally lacking in Common and High School instruction

is the ability of the teacher to take, as the point of departure in any study, the concrete example, the personal experience of the pupil—that stimulus to the "apperceptive mass" which the environment always provides. For the ordinary mathematical problems of the smith, carpenter, builder, mason, etc., the Common School and lower grades of the High School ought to be and can be made the industrial and technical schools in the Province. They already profess to deal with a body of mathematics and science extensive enough to meet the requirements of these crafts; it remains only to pay due regard to mathematics, drawing and science as actually related to them.

We live in a new land in a world of great opportunities, and amid economic and social resources comparatively unexploited and unexplored. Our economic progress and our civilization depend largely on our capacity to recognize phenomena and deal with actual conditions and concrete realities.

The school, in seeking the cultivation of the pupils' character, practical efficiency and knowledge, should proceed through the pupils' activities, which spring from impulse or native interest; the school should carefully select from the realm of human affairs those subjects best fitted to awaken and maintain the child's interest and self-activity, and to contribute to its ideal development.

The subjects should preferably be chosen from the domain of the really useful, for the utility underlying the study contributes not a little to the power of awakening and maintaining interest. The test of a topic in the program of studies is whether that topic is calculated to reveal to the pupil some important aspect of his environment, and thereby stimulate desirable mental or emotional motor activity. If so, then the knowledge said to be imparted is not only useful, but disciplinary in the true sense.

The so-called "three R's" while invaluable as tools or instruments of education, are not in themselves educative. They represent merely the several skills or acquisitions that render true education possible of attainment. Though of supreme value for the ultimate purposes of life, they are in themselves empty of content and meaning. Hence the child-mind starves in schools where only the three R's are taught. Thus it is that the European peasant, who is compelled by law to learn to read, ceases to read once he leaves school. Thus, too, the Nova Scotian, drilled solely in the mechanics of reading, writing and ciphering, has too often shown himself resourceless in the presence of diminishing fertility of the soil, and changing industrial and economic conditions.

To compass the ends of true education, the school must provide an intellectual content drawn from the whole realm of the child's activities, and where possible from matters dealt with in other branches of school study from which the exercises in reading, writing and arithmetic are to be developed. Hence the program of studies must be inter-related, and indicate a unified educative process and a unified subject matter.

The occupations which the pupils are likely to pursue furnish subjects quite as educative as those subjects traditionally consecrated to education, besides making the pupils conversant with fundamental principles of commerce, agriculture and every grade of industries, thus ensuring their capacity for further study.

Illustrations and applications should spring also from present needs, interests and environment of pupils.

The course of study should fit the increasing capacity and developing interests of the successive grades of pupils. The aim should be to provide the pupil with abundant contacts with material things and with society, and to proceed from his own concrete experience to interpret the material, social and moral order in which he lives. It is not prudent for a course of study to comprise only what the average child can fully retain in memory throughout the school period, or even throughout the year. In short, the program of study should be such in content and treatment as to ensure not merely the instruction, but the education of the child in point of character, culture and efficiency.

PUBLIC SCHOOL SUBSTITUTION COURSES IN MINING.

The Province of Nova Scotia derives a revenue from Coal Mining of about half a million dollars a year, hence it is to their interest to enlarge the industry as much as possible. In coal mining communities practically everybody either expects to be a coal miner or derives his or her income from coal mining. The number who try to get into the professions is very few.

The Department of Technical Education believe that by adding more utilitarian training to the Public Schools the same educational value could be given. It is not necessary for boys in grades 8 and 9 who do not intend to be coal miners to take drawing, mining science and mineralogy. The drawing taught, instead of being ornamental, is mechanical drawing on a very carefully graded course, beginning with actual objects like a nut or bolt, and continuing in increasing difficulty the actual objects most common to a coal mine. Thus at the same time as they are drawing they are illustrating geometry and giving it a practical aspect. In two years a boy taking this course would have a good knowledge of mechanical drawing, could read blue prints, and in case a machine broke down could make an emergency sketch for a blacksmith or machine shop to have repairs made. The boys are taught practical chemistry as applied to the coal mine gases found in the mine, coal mine exudation, combustion of coal, etc., emphasizing what would be of practical value and teaching them the economic laws that underlie the subject. Instead of being given botany by picking flowers to pieces they are given mineralogy and zoology, and are told the story of the formation of coal, how it is confined practically to those rocks that illustrate the life then existing, and they learn general geological history. Throughout the whole of the instruction the motive relates to the coal mining industry and the people connected with it.

The evening class instructors were sent into the Public Day Schools to teach the above courses, the object being to make the education of utilitarian value to the boy, and also to give him some practical subjects that would incline him to stay longer in the school. Records of all men attending the Coal Mining Evening Schools show that a large percentage left school at the fourth, fifth and sixth grades, which means that their education was very deficient.

The number of boys who took these mining science courses in the Public

Schools under the direction of the coal mining instructors during 1911-12 and did excellent work was 123, as follows:—Springhill 43, Westville 25, Glace Bay 41, Sydney Mines 14.

This voluntary work is taken at the time boys would be taking work in ordinary classes taught by the regular teacher, but the special teacher comes in and the regular teacher takes the other subjects for which this is a substitute.

These classes are growing in favor with both pupils and parents, and serve to make the work in the upper grades of the Common Schools more interesting and of more practical value in preparing for industry those boys who leave the Public School system at the age of 14 or 15.

The boys show much more interest in mechanical drawing of common parts of colliery machinery than they did in the free-hand drawing of the regular Public School course. Elementary mechanics seems more vital to them than botany. The chemistry of colliery explosions and of combustion appeals to them to a far greater degree than the dry, formal statements of the atomic theory, the laws of chemical combination, etc.

This mining science course is keeping the boy in school for a greater length of time than formerly, because he feels that the course in the Public School contains some instruction which aims to prepare him somewhat for his life struggle in the industry which is the greatest single centre of interest in a mining town.

There is no doubt of the boys' interest in the mining science classes, because in some cases they have come back regularly on Saturday mornings to do this work when room could not be found for it in the weekly program of the school. In one case where there was not accommodation for all the boys who applied to enter the mining science classes in a certain coal mining town, some of the boys who could not be admitted went home crying.

SECTION 3: NORMAL SCHOOL TRAINING.

About half of the Teachers of Nova Scotia are trained in the Normal School. Not all are required to be trained, but the public is almost ready for much stronger legislation making teacher-training compulsory except perhaps in the lowest grade. In 1912 there were 293 students in the school, the highest in its history. For the lower rank of diploma the course is only four months; for the higher or senior class it is a full year. One great difficulty in the preparation of teachers is to obtain a large measure of practice.

Dr Soloan, Principal, believes that the Common School is the foundation of all industrial and agricultural success, and can and should accomplish all that is necessary up to grade 10 for the rank and file of workers. It should be the people's technical school, serving the great mass of workers of the nation in horticulture, elementary agriculture, drafting and designing leading up to carpenter work, masonry, smithing, etc. The reason the Common School does not do that, in his opinion, is that it cannot provide teachers, cannot pay them, cannot make the position attractive enough, pecuniarily and otherwise; but he looks hopefully for

the period within his own life time when the Common School will be the Industrial School.

Pupils go from the Common School to the Agricultural College well acquainted with the principles of physics, chemistry, horticulture, nature study and geology, and are thus ready from the outset to appropriate the instruction given there.

The Common School courses enjoy an independence which the High School courses do not, for the Colleges do not dictate terms to them, and they work out their own salvation in their own sphere of usefulness. Dr. Soloan states that the whole trend of the improved courses for Common Schools on which the Provincial Educational Association's Committee is working with the Superintendent of Education will be to overcome the tendency to proceed from abstractions to abstractions, and to make the instructions proceed from the concrete as far as possible, not only in mathematics and science but in the pupils' own language. The people are beginning to think in a more technical and practical way, and are desirous of having the course of studies improved in that way. This would be a very good preparation for any more specialized industrial training. The Education Department, in co-operation with the Technical College, now allows the substitution in Grades 7 and 8 of the elements of geology and mining, for other studies in mining communities.

To bring the High School courses into closest co-ordination with the pupils' activities involves expense, and he did not know where Nova Scotia and her sister Provinces were to get money for this. The High School course of study is decidedly in the interest of the well-to-do classes whose sons were to be clergymen, etc., and people who wish their sons and daughters sent to college want that program. The algebra and the abstractions of Euclid specified by the colleges do not serve much purpose except for those who are going to pursue mathematical studies at college. Dr. Soloan's suggestion would be to add to the High School course subjects such as agriculture, mechanic science and modern geometry; but the difficulty is to get teachers who can sufficiently demonstrate such programs. Owing to the small attractions offered to teachers, the schools are largely dependent on the services of women. The co-operation between High Schools and the activities of the community in general should be greater, Dr. Soloan thought, and the courses should not be designed too exclusively for college matriculation.

There should be some manual training, domestic science, and commercial study, and a program specially designed for girls. The present High School courses are not well designed for girls except such as are going to be "scholars," and this forcing may become a menace to the health of young women at that age; yet it is pretty hard to check false ambitions in parents and children, and people have a false respect for learning, regardless whether it bears on life or not. Nova Scotia has inherited the beautiful traditions of Scotland and respects learning, but Dr. Soloan thought that respect need not be less because the learning is of practical utility.

The course he had outlined for the High School would be far more cultural than the present, for to Dr. Soloan's mind the cultured man is the one who can

deal with many things in a proper and fitting way, and knows how to conduct himself in life and make a success of the business entrusted to him; and he had no such distinction in mind as to call a few language studies cultural and the rest non-cultural, for there were manifest examples of persons who had acquired a great deal of learning and yet remained boors. The modifications he had suggested would make men more cultured because more stress would be laid upon the interpretation not only of material, but of the moral, civic and social relations of our people in our time.

Agriculture, Dr. Soloan thinks, should be a subject of special care in Common and High Schools. The Provincial Government is spending a few dollars more than usual in bringing teachers to Truro for a course at the affiliated Agricultural College and Normal College, the Government's object being an economic one—the improvement of Agriculture. This plan costs more money, but not enough is being spent on it. After a lengthy course of training by Science Instructors, which is pretty expensive to those teachers, they receive a subsidy of a few dollars to indemnify them for such expense. Although there are moral satisfactions in being able to do better work, he thought there should be money subsidies commensurate with other things; otherwise the teachers retire into the social background and cannot do as effective work as they should. He hopes that the Province would subsidise school gardens by some thousands of dollars a year, so as to make it worth while to rural school teachers to teach elementary agriculture. Of course that money should be charged against the Agricultural Department and not that of Education. He believed the Federal Treasury should be drawn on for outlays of this sort, as such work done in the schools he considered technical or industrial education, the cost of which should be largely met by Federal revenues, thus leaving the Provincial revenue free for customary appropriations for general education.

The Maritime Provinces, having no school lands, have not, in Dr. Soloan's opinion, been so generously treated as those in the West, though it might have been arranged that some of the lands in the newly organized Western Provinces would be set aside for the benefit of education in the older provinces, just as the United States Federal Government set aside land in newly organized States for the benefit of Colleges of Agriculture and Mechanic Arts in the older States. It may be too late now to make that principle operative; but he believed the Dominion Treasury has means to do all this work without entailing any great burden upon it, and he hoped that the Provincial revenues would not be so largely drawn upon for technical education as they are in danger of being, for if the drain is so great as to impair the efficiency of the Common and High Schools, nothing but disaster in education is ahead. Federal aid, he argued, need not involve Federal control of education; but the Dominion Government might specify the purposes for which subsidies or appropriations must be used, and they might have a Bureau of Education, as the United States has, part of whose duty would be to foresee and check the expenditure as made with the several Provinces.

Dr. Soloan believed that Nova Scotia was ready to develop the agricultural side to the point suggested. It would not involve a very large number of teachers, as the teaching of elementary agriculture in rural schools does not make a large draft upon time, the school day in the country being six hours. Teachers who are

to do that work should be competent to do it so effectively as to draw a subsidy, and the Nova Scotia teachers are anxious to do it. In those communities in which industries are situated, a substitute should be provided for agriculture. Every teacher would have to be Normal-trained before the plan could be carried out completely.

In his report for 1912, Dr. Soloan enlarges on the need for more practical work in schools preparatory to the Normal training.

He remarks on the weak hold the normal student body has on fundamental principles, whether the subject be language, literature, mathematics, science or drawing. While they show proof of diligence and of ambition to improve, too often it is the blind diligence of the mechanical memorizer, not of the investigator, and weak ambition to excel in amassing information rather than in using it.

At regular intervals these students, while high school pupils, were subjected to examination of one and only one kind—examination in the statement of facts, principles and theories. But the written examination cannot very well probe the capacity of the pupil to deal with real things; to manipulate, to dimension, to construct; to observe, compare and classify phenomena and materials. The power to do these things must be left to the honesty and intelligence of the teacher to develop in his pupils.

Dr. Soloan proceeds:—

It is unlikely, however, that this power to acquire knowledge for oneself from first-hand sources, to classify and to reduce phenomena to principle, to test and to verify statements of the textbook, shall ever be developed in a satisfactory measure until the public school makes the study of natural phenomena—natural and physical science—not merely imperative as a subject for annual written examinations but operative as a basis for method in all studies susceptible of what may figuratively be called "laboratory" treatment. Grammar, geography, nature-study, civics and, to a certain extent, history, all lend themselves to this treatment—the inductive method, the method of "trial and error," or whatever one may choose to call it.

Confidence, a firm grasp of principles and a comprehension of the nature of principles, will hardly come by mere good-luck to pupils whose mental activities are confined to conning literary gems, memorizing half-meaningless dates and place-names, ciphering and spelling, and, later, committing euclidean and algebraic abstractions and the accidence and rules of foreign languages. Such reasoning as is called for in these tasks is entirely inferential or deductive. Human progress has been made continually possible in modern times not thru deductive reasoning, but thru the process of inductive reasoning—the process of the natural and physical sciences. "Method" in teaching is an utterly incomprehensible and meaningless term to one unfamiliar with the inductive progress.

Recent changes in the syllabi of high school examinations are responsible for the admission to the Normal College of candidates for license lacking not only familiarity with processes of experiment, comparison and classification, but with the theoretical knowledge and even the simple technical terms of plant study, chemistry and nature-phenomena.

Immediately botany, chemistry, and physics were made optional instead of imperative, these branches began to be dropped in high schools and in villages and rural schools where candidates were being prepared for the provincial high school examinations. This is not remarkable. The natural sciences, to be effectively taught, demand from teacher and pupil efforts more varied and original than do the purely text-book subjects. Material preparation must be made for each day's lesson. Selective judgment must be exercised in the choice of topics and in determining of perspectives of importance and non-importance. So, the sciences are called "hard" subjects, and are dropped.

And this is not all. The pupil who ignores natural science in the high school will ignore nature-teaching in the common school which she later administers. Not a very hopeful outlook there for elementary agriculture and for the making of intelligent students for our agricultural college! Hardly satisfactory, either, to the promoters of scientific temperance teaching; or to those who believe that the preparation of girls for scientific training in hygiene, home sanitation, cookery, the nature of health, disease and preventive measures, is one of the most important functions of the school.

Nor is it a satisfactory prospect for the friends of elementary training for the industrial life of the artisan, the factory hand, the miner; or, indeed, for any of those classes of society who are today in the greatest need of a diffusion among them of general intelligence, resourcefulness, and the power of sustained thinking, in order to hold their own against economic and social forces that threaten their very freedom.

In fact, where elementary science, applied mathematics, and constructive exercises are omitted from the daily round of school life, there is not much left except abstractions and merely formal facilities such as penmanship and spelling. There is little intellectual content. In such schools it is usually found that even the rules of English language are learned for recitation, not for use, and that what passes for the study of literature is a study of language-forms, not of content. Only thru a first-hand study of things, people, conditions, can a body of thought and experiences be obtained which will stimulate the learner to practical effort in clothing the substance of his thought with language accurate and appropriate and to purposeful effort at self-expression not only in language but in draftsmanship, in constructive tasks, and in general conduct.

A new regulation requires that applicants who have not a satisfactory percentage in the sciences of the several school grades must pass an entrance examination in these branches.

SECTION 4: THE SUMMER SCHOOL OF SCIENCE.

This school was established 25 years ago to afford Maritime Province teachers and others the opportunity of combining study with Summer holiday outing, which combines work and recreation in an attractive way for three weeks. Mornings are given to lectures and laboratory work, afternoons to field work and excursions, and evenings to lectures and discussions, to which the public are invited. The true methods of teaching are exemplified by the best teachers of the Atlantic Provinces, while the excursions, public lectures, etc., afford teachers rare opportunities for acquaintance with the resources of those Provinces, as well as with prominent men and women. The companionship of congenial minds and a large amount of out-door exercise in collecting plants, minerals, shells, etc., combine to make it the most recreative of holiday trips and at the same time one of the least expensive. It increases the usefulness of teachers by enabling them to direct attention to those scientific subjects which to a large extent lie at the foundation of the material prosperity of the Atlantic Provinces of Canada.

Three classes of subjects are taught:—(1) Physical Sciences, including physical chemistry, zoology and mineralogy. (2) Biology sciences, including botany, physiology, geology, and entomology. (3) Miscellaneous, including literature, drawing, manual training, music, etc. A special course in physical culture and military drill is also given by instructors furnished by the Department of Militia and Defence from the garrison at Halifax.

For examination purposes, the work in each nature science subject is divided into three sections of equal value (a) Prescribed text books and lectures, (b) Practical and original work such as dissecting, experimenting, etc. in the laboratory, (c) Collections, mountings, apparatus. The purpose of this arrangement is to lay stress on real knowledge of a practical character, rather than upon that derived chiefly from text books. The lectures and demonstrations are intended especially to elucidate the facts and principles more or less obscure and to exhibit best methods of teaching elementary science. All laboratory work is done with simplest equipments, such as are within reach of common schools of the Maritime Provinces. The Normal School at Truro and Mount Allison University at Sackville give students credit for successful work done at this Summer School. Public spirit and

friends of the school have provided for 4 scholarships of $40 each and 10 of $10 each, open to all Provincial Students of the first year, and four advanced scholarships of $20 each, open for competition only to those who were candidates for scholarships the previous year.

Registration fee, which entitles the student to attend all except the advanced classes, is $2.50; each class in the advanced course is $2 additional.

The Nova Scotia Government grants the school $200 when it meets in that Province and $100 when it goes outside; New Brunswick does the same. Prince Edward Island gives half these amounts. About 200 teachers attend, the cost to each being about $30; but as yet they do not receive any more salary or any Government recognition after taking this training. In the opinion of leaders of this movement teachers should receive at least what it costs them to attend, and in such case this and other summer schools would get all those teachers who are industrious and ambitious; all of whom return much better qualified for teaching, not only because of ideas obtained through intercourse and practical work, but by seeing examples of teaching in classes. The teacher studying special subjects at the Summer School becomes more alert mentally and is able to make school work more interesting by calling the pupils' attention to things around their homes. A four-week session would be better than three, and it might be attempted if teachers did not have to pay their own expenses.

Very few teachers return for a second year, but provision is made for those who do. The majority of teachers present at the evening session which was held while our Commission was in Liverpool, N. S., voted that they would take a second year with an enlargement of the work they were then doing, if they could get it without cost except for board.

SECTION 5: THE NOVA SCOTIA UNIVERSITIES.

The Universities which are affiliated with the Provincial Technical College at Halifax are King's at Windsor, Dalhousie at Halifax, Acadia at Wolfville, and St. Francis Xavier at Antigonish.

King's College.

King's is under Church of England management. First year students of King's College make use of the Windsor Foundries and Machine Company's shop. In the second year they take physics with laboratory work, machine design shop work, surveying and applied mechanics. The engineering course was established in 1871, the science course about 1854. This being a residential college, parents prefer sending boys there for the first two years, rather than to Halifax. The shop work with the foundry helps the boys.

A new department of Domestic Science, including cooking (simple and advanced,) hygiene, household demonstration, home nursing, sewing, laundry work and other household duties, with lectures and other theoretical instruction

was opened in 1910 for pupils who have gone through the school course in the Church School for Girls (established in 1890 on the initiative of Alumni of King's College), or who have attained a certain age and standard of proficiency. Suitable accommodation has been provided and a competent mistress engaged for the Department.

Dalhousie University.

This University, which is undenominational, carries on extension work, evening and special classes for men who are not going into professions; and lectures by Dr. Lawson, Professor of Chemistry, are attended by a large number of leading men from cotton and sugar factories, breweries, etc.

The Provincial Government was asked to establish a Department of Technical Education, but as they did not see their way to do so, Dalhousie in 1902 appealed to the community and received sufficient money to put the experiment fairly under way. It added three or four men to its staff in chemistry and physics, and secured professors of engineering, of geology, and of mining and metallurgy. The success of the enterprise amazed everyone, the first year over 20 freshmen taking the new course, and additions were made in the second and third years, so that soon there were 70 men in the University looking forward to this work.

From the first the leaders of Trade Unions helped in the matter of technical education, and cordially reciprocated every effort Dalhousie made for them. Dr. Forrest said that while some of these men have high ideals of efficiency, the ordinary uneducated workman does not think much about it.

The Mining Association became interested and joined the University in an appeal to the Government, and the plan having been shewn to be practical, it undertook the work. The Government found that a large part of the money that was going out of the country to correspondence schools was wasted, as not one student in ten completed the course on account of inability to study without a teacher. The Technical College was started with Prof. Sexton at its head, and arrangements were made with the different Colleges for affiliation. The Technical College simply inherited a work Dalhousie had experimented upon and carried to that point, and took over the 3rd and 4th year University work which had formerly been done by McGill University (Montreal) and Mount Allison (Sackville, N.B.). The affiliated Universities are now expending their strength in doing the more scientific part of the work, so to speak, leaving the technical part for the Technical College.

When Dalhousie representatives went to mining and manufacturing districts, large numbers of men such as underground and overground managers who did not expect to take the University course or graduate in engineering, said that the Technical College could do nothing for them; hence a system of subsidiary schools was planned and started in Stellarton, New Glasgow, Glace Bay, Sydney, and wherever a number of men could be got together, first in the summer months and then in the winter evenings.

Nothing has done more, in Dr. Forrest's view, to stir up public interest in education than this plan of co-operation. There is a new spirit stirring among the one or two hundred young fellows who assemble in the Technical College.

These hard-working fellows who used to think that education was not intended for them now spend night after night working most diligently. The Technical College has been an immense success, reaching a class of people the Universities never touched, and inculcating a new idea, that of efficiency of work and increase of production, hence doing a great deal to advance the interests not only of the working classes, but of the industries of the community.

The Chairman of the Board of Governors (Mr. Campbell) thought it important not only to train men to produce in the most economical and scientific manner, but also to handle, sell and find a market for the product, which he considered as important as production. He said that Germany had advanced rapidly as a manufacturing country because she had trained men for selling, giving them modern languages, commercial law, knowledge of their product, and teaching them how to find the best markets.

Dalhousie University, though it has given up what might be called technical science, still retains a regular science course which is pure science rather than applied and advanced, and honor courses in pure and applied mathematics. Under the 1851 exhibition scholarship, Dalhousie Science Dept. gave a large number of scientists to both the United States and the Old World, all of whom held their own. A few students come for post-graduate work; but the University has not satisfactory facilities for such work.

Acadia University.

This institution was founded by the Baptist Educational Society in 1838 and incorporated in 1840.

The Carnegie Science Hall contains laboratories for chemistry, physics, geology and biology. Some industrial work is carried on in the University. In the Acadia Ladies' Seminary an Arts and Craft course is conducted. Physics bearing on housekeeping is taught in the Domestic Science Laboratory. A special Manual Training Hall is utilized in connection with Horton Collegiate Academy (boys), which has an iron and woodworking equipment. Manual Training is included in the collegiate course as an option, and may be taken as a separate course covering three years, or with other courses. In the junior year there are progressive wood-working exercises, freehand and mathematical drawing; in the middle year bench work and lathe work added, and in the senior year iron work, blue printing, lettering, etc. There is sufficient equipment, the machinery being driven by a 5 H.P. motor.

The movement towards establishing engineering courses at Acadia started in 1904, when affiliation was arranged with McGill with respect to work in various departments of applied science, by which students who had completed a prescribed course at Acadia were admitted without examination to the third year in the various departments of engineering in McGill.

In 1906 Acadia co-operated with the other Provincial Colleges in urging the establishment of the Provincial Technical College, and later became affiliated with it. While the course prescribed for admission to the latter differs some-what from the McGill course, Acadia is meeting the requirements in every

particular. This partial engineering course at Acadia requires 30 or 35 hours per week of recitation and laboratory work, and although students who enter well prepared have no difficulty in completing the work in two years, many prefer to spend three years at the course. At the beginning of the second year, engineering men meet a month before the regular College opening to do their field work and surveying: this deducts five hours from the regular work of the second year, and thus makes the course a little easier. Any student of Acadia pursuing the regular Bachelor of Science course, which extends over four years, may take the special subjects of the engineering course either as electives or as extra subjects, and then qualify for the certificate of the course in addition to the regular degree. The instruction in engineering subjects has been recently grouped into a single department known as the Department of Applied Science, the faculty numbering nine, three of whom teach exclusively engineering subjects. The new Carnegie Science building has been found admirably adapted for the work in chemistry and physics, and such subjects of the engineering courses are taught there.

St. Francis Xavier.

This (Roman Catholic) University received its charter in 1866, having been begun in 1853. Some students take more advanced courses in mathematics and other branches of pure science than are required in the two years' engineering course for the Provincial Technical College.

This University was one of the first to take practical steps towards technical education, a deputation having waited on the Provincial Government over ten years ago, seeking assistance towards equipment and facilities. A sufficient equipment was then provided for the first two years' course, and work in that direction has been done ever since. A handsome Science Building, the gift of an anonymous friend of the College, has recently been erected, the equipment being very complete. The Rector, Rev. Dr. McPherson, pointed out that the greater cost of technical education over that of an ordinary Arts course in respect to equipment, accommodation and staff, makes it an embarrassment for a University to carry on technical work without ample resources, and most of the students here are boys who cannot afford to pay very much.

A student from this University has been in Munich studying biology, another in John Hopkins University studying physics and mathematics, and a third, who studied at Truro Agricultural College, is going to Guelph to finish in agriculture—these men having gone abroad for the express purpose of returning to teach in the University, whose purpose is to develop on a scientific line which may serve as a source of inspiration to the people, and to give courses of lectures in connection with experimental work as soon as means and staff permit. The University cannot afford a course in agriculture, but the desire is to develop in that direction.

The physics laboratory was completed in 1900, and is equipped for practical work in science and engineering. The faculty of Applied Science has a staff of ten instructors.

This University conducts a Summer School—the first to be started in the

Province, which runs from about the middle of July for about five weeks. The course includes botany, chemistry and geology, physics, mathematics, stenography and typewriting, and physical culture. Certificates are given by the Council of Public Instruction and recognized by the Education Departments of the Provinces. Graduates from the Summer School can put much of the work into their schools, and could teach from a school garden if they knew the work sufficiently to carry it out well.

Some of the students in physics and chemistry are experienced miners, a few have been in the steel works, and some worked during the vacations at their trade as miners. The practical experience of difficulties in smelting is of great assistance to such men. The training here would enable the mining officials to act as teacher in the evening class, because they learn both the principles and their right application, and such men would add to the safety of mining, because their training in physics and chemistry would make them careful in observation, which is essential to success in experimenting.

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CHAPTER III: PROVISIONS FOR TECHNICAL INSTRUCTION.

SECTION 1: THE NOVA SCOTIA TECHNICAL COLLEGE.

In 1906 the Nova Scotia legislature passed laws providing for a system of technical education. This was two months before a system was established in Massachusetts by that legislature, hence Nova Scotia may be said to be the pioneer in America of a comprehensive system supported by taxation. The Nova Scotia system attempted to provide for all kinds of technology, applied science and industrial instruction that the Province needed, (except agriculture, which was already covered in the Agricultural College at Truro). It provided (1) for a technical college where youths could be trained for the engineering profession; (2) for continuance of the coal mining and engineering schools already in existence in the Department of Public Works and Improvements; (3) for the establishment of local technical schools in industrial communities.

The establishment of a Technical College involved an interesting educational problem, which Prof. Sexton outlined. For many years a number of colleges of high reputation were maintained for University training, four in Nova Scotia (Acadia, Dalhousie, King's and St. Francis Xavier) and one just over the border in New Brunswick, at Sackville (Mount Allison), which drew largely from Nova Scotia for its students. These colleges were all healthy rivals, and had not co-operated to hardly any extent except to maintain a high standard of graduation for degrees. One of them had established full four-year courses in Civil and Mining Engineering, and had graduated some students from those departments; some of the others carried on the first two years' work in Engineering and were affiliated with McGill University, Montreal. Through the efforts of the Nova Scotia Mining Society all representatives of the different colleges and collegiates were brought together in Halifax, and the Mining Society and Board of Trade attempted to get them to form some working agreement. It was surprising how quickly they sank local prejudices and interests and formed a working agreement. It took only one evening, and next day this agreement was presented to the Government—a high tribute to Nova Scotia for her zeal and high ideals in education.

The basis of the working agreement was that the college which had already carried the four year course in Engineering was willing to relinquish the last two years, while colleges affiliated with McGill were willing to affiliate with the Provincial Technical College if established and maintained on a high plane.

The terms of the affiliation arranged with the separate Universities called for a uniform course in engineering, covering the first two years, the Technical College giving the last two years in four branches of engineering—civil, electrical, mechanical and mining. A standardised course for the first two years' course was

worked out, adopted by the Board of Governors of the Technical College (consisting of the faculty of the college, and one representative from each of the affiliated colleges), and ratified by the Council of Public Instruction, as approaching nearest to the ideal which could be attained by all the Universities.

This standardised course is as follows:—

COURSES IN ENGINEERING.

FIRST YEAR.

1.	MATHEMATICS (*First and Second Years*):—	
	1. *Algebra*—Higher Algebra, including graphs	72 hours
	2. *Trigonometry*—As in Murray's Plane Trigonometry	18 hours
	3. *Solid Geometry*	24 hours
	4. *Analytical Geometry*	60 hours
	5. *Calculus*—Differential and Integral	90 hours
2.	CHEMISTRY (*First Year*):—	
	1. *General Chemistry*—Lectures	72 hours
	2. *General Chemistry*—Laboratory	90 hours
3.	ENGLISH	72 hours
4.	FRENCH OR GERMAN—One-third of time to be devoted to Technical Literature	72 hours
5.	DRAWING—*Mechanical and Freehand*	192 hours
6.	WORKSHOP	144 hours

SECOND YEAR.

2.	PHYSICS—Including *Mechanics, Electricity, Light and Sound:*	
	1. Lectures and Recitations	96 hours
	2. Laboratory	72 hours
3.	CHEMISTRY—*Qualitative Analysis:*	
	1. Lectures	24 hours
	2. Laboratory	96 hours
4.	SURVEYING:—	
	1. Lectures	24 hours
	2. Field and Laboratory Work	48 hours
	3. Engineering Field-work (Camp) for three weeks of eight hours per day in *First* and *Second Years*	144 hours
5.	SHOP WORK	96 hours
6.	ENGLISH—*Literature and Composition*	48 hours
7.	Either (*a*), (*b*), or (*c*), in addition, according to the course:	
	(*a*) For CIVIL ENGINEERING:	
	1. *Descriptive Geometry*—Lectures, Recitation and Drawing	72 hours
	2. *Geology*—Lectures	48 hours
	3. *Geology*—Laboratory Work and Field Excursion	48 hours
	(*b*) For MINING ENGINEERING:	
	1. *Geology*—General Geology as in (*a*)	96 hours
	2. *Mineralogy*—Recitation and Laboratory	72 hours
	(*c*) For MECHANICAL AND ELECTRICAL ENGINEERING:	
	1. *Descriptive Geometry*—Lectures, Recitation and Drawing	72 hours
	2. *Machine Drawing and Design*—Drawing	72 hours

COURSES IN THE TECHNICAL COLLEGE.

The last two years are sub-divided into the separate individual courses mentioned above. The Universities carry on the first two years' course with practically no addition to their staff or equipment, and this two years' course admits to the Technical College on certificate, not on any examination.

The students are graduated from the Technical College, which the Government supplies equipment and staff, and the affiliated colleges are thus relieved of the burden of an expensive equipment for professional work. Thus there is an avoidance of unnecessary competition and duplication of unnecessary plants and a wise economy of resources and teaching power.

The different departments of instruction in the Civil, Electrical and Mining Engineering are for the most part separate, each branch receiving its own special professional teaching, though there are certain fundamental courses common to all, such as applied mechanics and thermo-dynamics. The Mechanical and Electrical courses are identical during the whole of the junior year, but are separated in the senior year. As in the two years' course, a demand is made upon the student's time and effort, due to the high standard of graduation aimed at—as high as that attained in leading American Engineering Colleges. The obstacles which have to be overcome in attaining this standard are the three college terms in Nova Scotia, and the lower requirements of matriculation. The school year of the Technical College has been made of the same length as that in the U. S.—30 weeks of actual instruction —and the requirements for admission to the first two years' engineering course in the affiliated Universities are somewhat more difficult, especially in mathematics, than the corresponding admission to an Arts or Science course. It is hoped and expected that all the colleges will unite in the near future in raising their standard of entrance.

The work of instruction consists of lectures, recitations, laboratory and drafting. The recitation method of class work is adhered to wherever the subjects admit, the attempt being made to avoid general lecture courses as far as possible.

Daily problem work to be handed in, and work of the same nature on the black-board are carried on to the utmost. The laboratory testing is of as practical a nature as possible; but experiments have in view the illustration of scientific principles rather than carrying through the commercial routine list. Excursions are made to engineering enterprises, and written reports are required of practical experience gained by students in the civil engineering summer camp and the summer course in practical mining for mining engineers, as well as in other summer engagements.

Aim of the Course and the College.

The general aim of the course is to turn out a graduate thoroughly grounded in the mathematic and scientific principles of a branch of engineering, together with a grasp of the principal application of those principles and the limitations of actual practice.

The aim of the College is distinctly not to graduate engineers, the Faculty of the College believing that an engineer cannot be made from a High School graduate in four years, but is only evolved by a number of years' civil apprenticeship in actual practice. The students must be firmly grounded in higher mathematics and general theories employed in College as a basis of civil branches of engineering, because in real life the engineer is usually too busy to acquire anything but a knowledge in the development of the best practice in his chosen branch of the engineering profession. Such men as the College does graduate may not rise to the eminence in the short time that is reached by men from other Colleges where the attempt is made to lay the main stress upon engineering practice rather than theory; but it is firmly believed that the man who is well grounded theoretically will on the

average ultimately climb higher, and be better able to follow the developments of his particular branch. Yet the College does not intend to graduate blind impractical theorists; hence a large amount of practical laboratory work and a great many practical problems are introduced into each course so as to show the student the general practical applications of theory so that he may make the theory a part of his actual working knowledge.

Degree, Scholarships, Etc.

Students in civil and mining engineering are required to take practical work in surveying in a summer camp conducted under canvas in a selected section where the topography admits of a variety of problems in surveying, including railway location, hydrographic surveying, correct triangulation and geodesy, etc., At the camp in 1909 attention was given almost exclusively to railway work, the proposition being to find a new location for the Halifax and South Western Railway, cutting out some sharp curves and heavy grades. The students were divided into two forces and two entirely different and independent lines were run, the positions of each party being shifted every day or two so that each student might become familiar with different phases of work. At the start the terminal points were fixed, then the students made a reconnaissance, followed this with a preliminary survey, then a topographic survey with the preliminary line as a framework, then an office location at the side of the plot, followed by an actual location in the field, after which levels were run and the line cross-sectioned. Hydrographic surveys were made in the vicinity of the points of crossing of all streams and inlets. The result of this work was that the line run by the students, though costing much more per mile to construct, would have a very low maintenance and operation cost as compared with the existing line as regards actual running, besides providing greater safety, and permitting higher speeds, thus making a cheaper and better proposition in the long run for a road with fair traffic.

A degree of Bachelor of Science is given to students who satisfactorily acquire the requisite professional knowledge in the regular courses of civil, mining, or mechanical engineering. Special students are permitted to take courses in any separate class or classes, as determined by the College, at $12 per year per course. The fee for any regular department of engineering is $75.

Free scholarships of a value of $75 are given, one for each of the 8 counties of Nova Scotia, except the Counties of Halifax and Cape Breton, for each of which there are two. These scholarships are awarded on the basis of need and merit after the results of the mid-year examination. Applicants must have been bona-fide residents for three years in the County. Short courses in each department for three months in the Winter are planned for men employed at railroad construction, land surveying, bridge building, mining superintendence, and firemen in charge of power plants at mines. These courses are arranged to give the individual what he needs in as concise a form as possible, and not devised to lead to any academic degree.

The staff of the College is small, but the utmost care has been taken in selecting men of practical experience combined with teaching ability, so that the quality of instruction should be of the highest.

The College can accommodate 100 students without any additional staff or expense and it is expected that this accommodation will provide for all demands in this direction for a number of years.

THE MURRAY LABORATORY OF MINING ENGINEERING.

Since the visit of our Commission to the College in 1910, the Murray Laboratory of Mining Engineering and Metallurgy has been constructed and equipped for the use of the Mining Engineering students, with a view to testing in commercial quantities any ores or coals of N.S. in order to establish successfully commercial treatments of the same. This laboratory is in the rear of the main College, and in keeping with its simple classic design, the whole building being a good example of modern slow-burning construction. Most of the work in connection with design and equipment was carried out by the staff and students of the Mining Engineering Department, the steel roof trusses being designed by the students of the Civil Engineering Department.

Already this laboratory has been of practical use to the mining industry. A sample of copper ore from a new district was sent to the College and tested, and the owners were advised as to the possibility of recovering the value from it by means of modern concentration processes.

A coal company is planning to have a series of coal washing tests carried out in the laboratory, with a view of saving some of the fuel value in a by-product from its collieries.

A company engaged in the mining and preparation of barytes received assistance in solving the problem of the separation of the barytes from the waste rock with which it is associated. This aid was acknowledged by the company as being of much value.

It is expected that the Technical College, with the aid of this laboratory, can assist the mining industry of the Province by helping to solve some of the problems that exist at present in the economical exploitation of its mineral resources.

The College has carried on some industrial research work, having taken a recently discovered mineral ore—"Shalite of tungsten"—and evolved a process of separating it from worthless material, under the supervision of the Director with the help of some students.

TRADE SCHOOL FOR GARMENT WORKERS.

A departure was made from the policy of opening evening classes of the general continuation-school type, when a special committee from the Halifax Merchant Tailors' and Cutters' Association requested the Department of Technical Education to establish a special class in garment making. They stated that with the improvement each year in quality of ready-made clothes, the competition with custom-made was growing constantly keener, that custom tailoring was also constantly improving, and that if they wished to maintain their position, they must, as an economic necessity, do something to improve the quality of their

product. They also wished to take steps to secure the highest development of the art and science of tailoring. The fact that any establishment had a most competent cutter did not guarantee the quality of the product, because the quality of so many other hands and minds entered into the making of the garment.

At present the foremen and others in the shop are too much concerned with production to give their time in teaching apprentices anything more than is absolutely necessary, so the less skilled workers have really no chance to learn the whole trade, and learn only one small part of it by making costly mistakes and by dint of doing the same small thing over and over again day after day, with the danger that if they become proficient in any speciality they will never be allowed to do anything else. Hence the demand for some place outside the shop where they may be taught the whole trade in the quickest and most scientific manner.

Co-operation from Merchants and Others.

A Committee having been formed giving representation to employers, to the trades union, and to the educational authorities, a Trade School was started, an instructor being brought from New York who had had adequate and varied training in this business, and who had been accustomed to high wages. He was given employment at finishing coats for other tailors, and this, together with his fee for the evening instruction, made a very good wage. The Merchant Tailors' and Cutters' Association promised hearty co-operation, a manufacturing clothier agreed to provide material and dispose of the product, and the Department furnished a basement room in the Technical College with the manufacturing type of sewing machine, press, gas and electric irons, and tables on which to lay out and make the work.

The purpose of the course, which was to cover two years of 50 evenings each, was to teach apprentices already employed in tailoring establishments the best modern method of high-class garment making.

Instruction began with the simplest operation of basting, and led up to the most skilled operations of finishing frock coats and dress suits. Much emphasis was laid upon basting, which when properly done as the garment progresses, secures the form, style and effect desired, though it is believed this work is overlooked to a great extent in the work-shop, much time and patience being required to teach it. A great deal of pains were taken in explaining the reason for all the minutiae in the art of tailoring, so that the apprentice should note the "why" of things and not perform his task blindly.

SECTION 2: SECONDARY TECHNICAL SCHOOLS.

Some years ago Dalhousie and King's Universities held separate and joint evening schools in Sydney of a practical nature for the instruction of mechanics. King's engineering students were to take part of the course in the University in Windsor and complete it at Sydney and Glace Bay in direct touch with the steel and coal industries. These schemes failed through lack of financial backing.

Scope and Plan of Schools.

When the Department of Technical Education was created, the series of evening schools for coal miners which had been established 18 years and the schools for stationary engineers which had operated about 7 years were doing a great deal of effective work. Their principal field was the training of coal miners in mathematics and theory and practice of mining, so as to pass the Government examination for certificates of competency required for official positions around coal mines, and enabling stationary engineers to get a higher grade of certificate. Many felt that those schools were not on a sound educational basis, and the Technical Education Department revised the scheme, establishing in every coal mining community preparatory classes in preparatory arithmetic and composition, so that men who had to leave school early in life or who were rusty on other subjects could prepare themselves to work decimal fractions with ease, to express themselves well in writing, and thus be enabled to enter the technical classes in coal mining. This proved to be a great boon, as theretofore half the time of session was spent in bringing a portion of the students up to grade in arithmetic and composition before they were able to take technical instruction. The teachers of those evening classes were men who had worked in mines all day, hence they were not fresh for their subject, and the teaching was not of the most efficient character.

After exhaustive preliminary investigation in manufacturing centres, it was found that both workmen and employers wished for technical education in scientific principles underlying their trades, and also to improve their general education. Employers complained of lack of competent foremen, while the men were inefficient through lack of ability to read blue-prints, etc. It was felt that the evening classes would increase the efficiency of workmen, enable mechanics to earn more and engender a feeling of responsibility, breadth of outlook and increase ambition, and thus benefit the industries of the Province.

The Provincial Legislature in 1906 established secondary technical schools of three types: (1) Evening Technical Schools; (2) Coal Mining Schools; (3) Engineering Schools.

(1) EVENING TECHNICAL SCHOOLS.

A new problem confronted the Department,—to give secondary technical instruction for manufacturing industries. The most obvious thing was to train to greater efficiency men already working at some trade, and not to increase the number of workers. The men already had work, and got that training only in the evening. Hence in those industrial communities we have the "Industrial Continuation School" or the "Industrial Improvement School". Here are taught general subjects—drawing, mathematics, physics, chemistry, mechanics, electricity—as applied to the trades of the men who attend the school.

When those schools were first opened no actual trade instruction was given which looked towards training a journeyman or a skilled mechanic in a trade. The

subjects offered included English, elementary book-keeping, practical arithmetic, practical mathematics, including algebra and trigonometry and geometry of a utilitarian kind, mechanical drawing, machine drawing and designing.

The effort was made to supply the things specially needed in every locality where 10 students were willing to take instruction. For building trades, architectural drawing and design, building construction and estimating; in electrical classes, dynamo and electrical machines and electrical engineering.

Book instruction was found to be of no use in the electrical classes, hence electrical laboratories were installed, costing about $1800 each, containing pieces of electrical machinery that can be tested in actual operation, also measuring instruments and apparatus to teach fundamental electric laws. This work must be practical, and apparatus is necessary for illustration.

For industries such as a sugar refinery, analytical chemistry is taught. In Sydney, metallurgical chemistry as applied to the smelting of iron and steel is given, also elementary surveying. For drug clerks, the subjects are elementary chemistry, pharmaceutical chemistry and pharmacy.

At Canso, a fishing community, book-keeping and arithmetic were taught five nights a week, so as to help the fishermen who sell direct to commission merchants and receive cash in return, to carry on their little business interests. Navigation was also taught, instruments being loaned by the Dominion Department of Marine and Fisheries. The students are aged from 18 to 45, and some are elderly men. As they have practically nothing to do for 2½ months, the school furnishes a centre of interest during the evenings. In the day time men are busy mending nets and repairing boats. It is intended to teach the management and repair of gasolene engines which are now in general use in fishing boats, and thus increase the earning capacity of the fishermen.

No special study had been made in the matter of increased mining power, and in the opinion of Director Sexton the instruction imparted would not give any greater productive capacity except in the direction above mentioned.

The demand for secondary technical schools has grown to a degree not expected when the schools were opened. The schools are all of the continuation school type. All instruction is given in the evenings except in some large colliery centres, where day classes in coal mining are held for those who work on night shift. Nearly all the instruction is of the nature of science, mathematics or drawing specially applied to the different vocations.

Admission, Certificates, Deposits, Diplomas, Teachers, etc.

Certificates are given to men who complete the courses and earn 75% of marks in the year. Courses have been arranged in electricity, building trades and drawing that run over three years and students get a diploma when they have completed this three years' course and also passed in arithmetic, practical mathematics and English. The latter is given one night a week when no other course is held. There is no entrance examination, and no fixed entrance standard; the pupil has only to satisfy the instructor that he can benefit by the instruction.

Deposits varying from $2 to $4.50 are required, and these are refunded in proportion to the percentage of attendance, no return being made for less than 60%. This is a distinctive feature, and helps largely in securing attendance, the sliding scale of returns being more satisfactory though naturally more troublesome.

Though the deposit and refund had been regarded as one of the elements of success in attaining a high percentage of attendance in the evening technical classes, the coal mining and engineering classes had always been entirely free to the pupils who consequently attended less regularly than if compelled to pay something as an earnest of their ambition to learn.

When an attempt was made last year to collect a deposit of $3 from each student who attended a preparatory, an engineering or a mining class, the students in some of the coal mining communities flatly refused to pay any deposit, and it was impossible for the teacher to collect it without losing all the pupils from the class. Such was the appreciation of the young men for educational opportunities for which he would cheerfully pay out many dollars to a correspondence school, and which cost the Government three or four times as much as it required of him as a merely temporary deposit. In other mining schools most of the pupils paid the small deposit, and the students who did not wish to pay this modest amount left the classes. In most coal mining towns, no difficulty whatever was experienced in this matter. It is needless to say that wherever the students paid the deposit, the attendance in the class was invariably higher than where there was no contribution from the pupils.

After these schools had been in operation for three years, diplomas were issued in 1910 to six students, but the effect of these diplomas as to gaining promotion will not be known for about five years, as employers are very loath to accept a piece of paper as proof of a man's efficiency.

These local Industrial Technical Schools are not supported wholly by the Government, as are the coal mining and engineering schools. The Government furnishes the apparatus and complete equipment for instruction, supplies at wholesale cost all draughting materials and instruments, and pays half the cost of instruction, the community furnishing the meeting places, usually the Public School, and supplying light and heat and paying half the instruction expense—teachers receiving from $2 to $4 a night according to their special knowledge. The proportion paid by the community is raised by taxation, and is part of the work of the school-board.

These schools are managed by a committee consisting of prominent manufacturers, foremen of shops and representatives from Trades Unions acting with the Provincial Director of Technical Education.

Some firms require that all their apprentices should attend these evening classes all of which have been very successful.

Teachers are appointed by the Government, and show much self-sacrifice, enthusiasm and fine spirit. A difficulty has been experienced in getting teachers. Those pedagogically trained can teach but do not know the practical part, while the practical men cannot explain; yet on the whole it is found that practical men are the best. The ideal teacher is one who has had special technical school training, combined with actual contact with an industry, so that he knows what knowledge

the men should have in order to increase their efficiency. Very few such teachers are available, and few Governments could afford to employ them because they could get such large pay in the industry itself. In nearly every case the Department has chosen men with practical experience and tried to direct them how to present the subject. This plan has been found more successful than if the other class of teacher had been taken, for the students at evening schools attend for business. It is not fun for them to study for two hours twice a week after working all day, and they do not care very much how the subject is presented if they know that the teacher has practical experience and knowledge that they can get from him. If the teacher does not give them the instruction they want, the class will dissolve right away, whereas a man with practical knowledge will find the students there almost every night. Evening students have a clear idea of what they need, and hence refuse to attend classes which don't fit their case. Being mature, they know the value of general and special education, and wish to acquire in the shortest time and by the most direct methods the knowledge they need; hence they are content with much crudity in the presentation if they obtain the desired facts. The teachers who are recruited from the Public Schools for general subjects such as English, arithmetic, geometry, trigonometry and algebra have caught the spirit of the technical schools, and do much to give the students all the short cuts and specialized instruction they wish.

Value of These Continuation Schools.

Experience in conducting technical classes has shown that boys or men who have left the educational system at a tender age have forgotten the greater part of what they learned at school; hence there is a great waste in the educational system by letting boys become absolutely free from schools at 14, and Prof. Sexton thinks that the compulsory attendance law which would keep the boy even to this tender age is not enforced in the industrial districts of Nova Scotia nearly as stringently as it should be. It seems an injury to themselves and society that their instruction should not be carried to the point where they are mature enough intelligibly to retain the knowledge imparted.

The evening continuation school giving theoretical training, so that men in trades may become more efficient is bound, in the opinion of Director Sexton, to be one of the main types applicable to Nova Scotia where there are small communities and not a large amount of money to spend.

There has been no instruction in trade operations, that is, trying to get men to learn their trade so that they can apply themselves with greater skill and efficiency, the most obvious demand being to give wage earners such technical training that they can become more skilled in the theoretical part of their trades. Mr. Sexton thinks that if a marble palace were placed in every community and trades were taught in toto, giving a four year course, and boys knew that if they attended they would come out skilled journeymen to work for certain wages, the palace could not be filled; for humanity is the same the world over; there are few ambitious men, and even if all sorts of opportunities were supplied, advantage would not be taken of them.

Workers have secured shorter hours until they are now working an eight hour day, and such a worker would not find it a very hard strain to attend a technical class for two hours two or three evenings a week. Coal miners do not usually labor for more than 6 or 7 hours a day, and it is noticed that the men almost always wash and put on their best clothes, so that they present a very neat and attractive appearance. There is thus a moral effect in these evening classes, not only in this direction, but in preventing men from hanging around saloons or other places, exchanging gossip.

Courses at Evening Technical Schools.

During 1911-12 evening technical schools were maintained in Halifax, Amherst, New Glasgow, Sydney and Yarmouth. In Truro the classes were not reopened, the School Commissioners feeling that they were not able to guarantee their half of the expense.

The classes now offered in the evening technical school are as follows:—

Practical Arithmetic.
Business English.
Practical Mathematics.
Mechanical Drawing.
Machine Drawing.
Machine Design.
Architectural Drawing.
Building Construction Drawing.
Architectural Design and Estimating.
Elements of Electricity.
Dynamo-Electric Machinery.
Alternating Current Machinery.
Elements of Chemistry.
Elementary Chemical Analysis.
Metallurgical Chemistry.
Garment Making.
Single Entry Bookkeeping.
Double Entry Bookkeeping.
Navigation.
Plain Sewing.
Blouse Making.
Skirt Making.

New classes in needlework were offered in Halifax, New Glasgow and Amherst. A three years' course of 50 evenings each winter was planned, covering plain sewing, blouse making, skirt-making. The response was greater than had been anticipated. Accommodation could not be provided in Halifax, and many had to be turned away. A large number of the applicants did not even know how to run a sewing machine. It was distinctly planned and distinctly announced that these were not trade classes to teach young women to become dressmakers, but only to assist them to make any kind of garment for themselves up to a coat or a tailored suit. A trade class in garment-making was already established and open to all who were actually engaged in the trade. The business interests of the trade were thus conserved and the proper classes established to educate those who could not afford to go to a regular dressmaker to order their clothes made especially for themselves.

(2) COAL MINING SCHOOLS.

The Department divided the coal mining areas into districts, and in each appointed a man whose sole business was to teach these coal mining classes, instructing classes six nights weekly. In large districts assistant instructors were appointed.

These instructors are men with long mining experience and practical knowledge of mathematics, a working knowledge of trigonometry for teaching the theory of ventilation and also a knowledge of surveying, coupled with ability to impart their knowledge. The Department could not utilise teachers out of the Public School, but were very fortunate in getting excellent men as instructors and only one change in the staff has been made in four years. These men are paid from $1000 to $1200 a year. They instruct in ventilation with theory, also practical production of air currents and their distribution through the mine, mechanics, biology, elementary geology as applied to coal mines, practical operation of mining, hoisting, hauling, tempering, etc., and surveying as applied specially to underground work.

Value of the Schools for Coal Miners.

These coal mining schools have prepared native Nova Scotians to take official positions in coal mines, and have made more intelligent miners, because a great many men attend the schools simply for the educational value who never go up for examinations. Cornelius Shields, the eminent engineer, one of the earliest Managers of the Dominion Coal Co., visited Nova Scotia to learn local conditions before assuming his duties, and declared his intention of importing a number of competent men from Pennsylvania Coal Mines, but when he investigated the conditions of labor, superintendence and mining methods in Cape Breton he brought only his Private Secretary. In a debate in the House of Commons it was stated by the Minister of Labor (Hon. W. L. Mackenzie King) that Nova Scotia had a death rate among miners which was about half that of the United States. The large part of the credit for this is due to the intelligence and sense of responsibility of the Nova Scotia miner, part of which comes through his education in the evening classes.

There is practically no mining community in Nova Scotia that has not either one regular instructor or the travelling instructor. The students receive a certificate on the completion of course. This is not a certificate of competency required in order to hold an official position, the latter being issued by the Government through a Board of examiners. The same educational qualifications apply in the engineering schools and in the mining classes. Students must have a knowledge of arithmetic from decimal fractions, and be ready to express themselves in writing logically and fairly grammatically.

In the engineering classes the students are taught the principles of mechanics and practical installation, operation and care of steam boilers, steam engines, compressors and pumps.

There is a separate examination for stationary engineers, the principal aim of students being to get first, second or third class certificates as stationary engineers.

All the above schools are entirely free, instructors being paid by the Government without expense to the locality, it also paying for light, fuel and janitor's services.

The men who take up the more technical instruction usually intend to take a Provincial Government examination for certificates of competency as colliery managers, underground managers, or overmen. It is customary to take the

examination for overman one year, then the examination for underground manager, then take one or two more years to acquire a managers' certificate.

In Glace Bay and Sydney Mines special classes are held for advanced work best suited to those who have obtained certificates as underground managers and wish to become colliery managers. In other localities the clasess include both elementary and advanced work, the instruction being more or less individual. The instruction is not strictly confined to subjects and questions that might be asked in the examination, but the schools aim to cover the whole ground and give a thorough technical education of secondary character.

Instructors in coal mining are engaged permanently by the Department and spend their whole time and effort in teaching technical classes connected with this industry. These teachers, besides being actual coal miners with experience in positions of responsibility, have educational qualifications fitting them for teaching. They conduct the evening classes as well as the special optional day classes in public schools in mathematics, drawing and mining science.

(3) ENGINEERING SCHOOLS.

These are closely associated with the coal mining schools, but distinct in organization. They are established in colliery centres, but not to the same extent as coal mining classes. The same entrance requirement in the technical courses is laid down for both, and the preparatory classes serve both schools. The instruction consists of a practical treatment of mechanical and steam engineering. The students are for the most part employed as hoist engineers or connected with power plants of collieries, their main incentive being to prepare for the Government certificate of competency, which must be possessed in order to hold a position as stationery engineer. The teachers are certificated engineers holding positions in the collieries and having teaching ability.

Classes in electricity and mechanical drawing have been in great demand in the larger centres, as the more progressive collieries are introducing electric power more and more each year, and also require men who know how to make intelligible drawings and read blue prints. Classes in electricity were established in Sydney Mines and Glace Bay, and instruction in mechanical drawing was offered in these places and also in Springhill and Port Hood. Special classes were not offered in Westville and Stellarton, because New Glasgow classes were so convenient.

Local technical schools have increased very much in attendance with each succeeding year because the courses offered are ministering to a long felt need in the communities, and have been found of so much practical value to those who have taken them that others are induced to attend.

The coal mining schools have been established much longer than any other, and have reached a nearly stationery condition because there are now a large number of men with certificates of competency who are not employed as officials.

The engineering schools have not as large number of students as four years ago, one cause being that the comparatively low wages paid to men around hoists and power plants do not invite ambitious men; another being the large number

of men in this line who have certificates of service, but have never taken an examination on the theory and practice of steam and mechanical engineering, which fact is rather discouraging to men who have sacrificed many hours and much personal effort in order to pass the requisite examination for certificates.

ATTENDANCE AT EVENING TECHNICAL SCHOOLS.

Director Sexton reports in 1912 that the attendance at evening technical schools continues to grow apace. In fact, the secondary technical schools have become so important a part of the system of technical education that they now demand a large part of his time. Many young men and women who have conscientiously taken advantage of the opportunities offered in these evening technical schools for the past five years have acquired such practical knowledge that they have secured positions of higher responsibility. The fact that some of pupils of evening technical schools have secured material advancement has been one of the strongest incentives to others to avail themselves of the educational facilities thus offered.

The classes were opened early in October, and continued till the end of April, 1912, with attendance as follows:—

(1) LOCAL TECHNICAL SCHOOLS.

Locality.	No. of Classes.	Total Enrolment.
Amherst	9	130
Halifax	30	658
New Glasgow	9	124
Sydney	10	171
Yarmouth	8	73
Totals	66	1,156

Increase over 1911 145

(2) MINING SCHOOLS.

Locality.	No. of Classes.	Total Enrolment.
Joggins Mines	3	43
River Heber	1	9
Springhill	4	49
Westville	4	60
Stellarton	2	14
Thorburn	3	28
Inverness	2	30
Sydney Mines	8	168
Glace Bay	6	133
Reserve Mine	2	29
Dominion	2	26
Dominion No. 6	2	29
New Aberdeen	1	21
New Waterford	2	34
Totals	42	673
Increase over 1911		243

(3) COAL MINING AND ENGINEERING SCHOOLS.

Cape Breton County:	No. of Classes.	Total Enrolment.
Glace Bay	6	132
Reserve Mines	2	29
Dominion	2	26
New Aberdeen	1	21
Dominion No. 6	2	29
New Waterford	2	34
Sydney Mines	6	142
Florence	2	26
Inverness County:		
Inverness	2	30
	25	569

Pictou County:	No. of Classes.	Total Enrolment.
	25	569
Stellarton	2	14
Westville	4	60
Thorburn	3	28
Cumberland County:		
Joggins Mines	3	43
River Hebert	1	9
Springhill	4	49
Totals	42	673

COST OF TECHNICAL SCHOOLS.

During the year ending July 31st, 1912, the expenditure for Technical Education was as follows:—

General administration $9,053.09, of which $4,815.93 was for salaries. The Technical College in Halifax $21,057.08, of which $12,818.85 went for salaries, $3,464.96 for apparatus, $1,432.15 for books and stationery, $699 for scholarships, and the balance for heat, light, water, printing, insurance, engineering camps, etc.

Evening Technical Schools.

	Salaries.	Apparatus.	Refunds	Total.
Halifax	$3,157.08	$733.29	$1,273.70	$5,164.07
Amherst	945.84	625.90	208.63	1,780.37
Sydney	1,233.80	707.97	292.13	2,233.90
Yarmouth	806.23	946.85	151.02	1,904.10
New Glasgow	1,375.65	424.18	236.16	2,035.99
Truro		18.00		18.00
Total				$13,136.43

Coal Mining and Engineering Schools.

	Salaries.	Apparatus.	Refunds.	Total.
Glace Bay.....	$3,298.37	$132.41	$200.40	$3,631.18
Sydney Mines.....	3,070.65	446.55	67.80	3,586.00
Pictou County.....	2,382.97	348.71	202.30	2,933.98
Cumberland County..	2,524.34	184.26	83.70	2,792.30
Inverness.....	289.81	49.80	.....	339.61
			Total.....	$13,282.07

Total for administration, Technical College and Local Schools.....	$56,529.57
Less cash paid to Provincial Cashier.....	9,826.73
Net expenditure....	$46,692.84

SECTION 3: FURTHER TESTIMONY AND OPINION OF PROFESSOR SEXTON.

Continuation Classes.

In his report for 1912, Director Sexton says that the time is becoming ripe in Nova Scotia for the establishment of day continuation classes for the youths engaged in industry, like those which obtain in Germany, where it is now compulsory throughout nearly the whole empire that employers must allow apprentices to attend an industrial continuation school for six to twelve hours a week during the whole period of indenture. The youth receives the same pay while he is in schools as he does at his work in the shop.

This arrangement Prof. Sexton considers the most effective scheme of industrial education now known, and it is producing wonderful results in making intelligent, thorough mechanics. He adds that England sees the futility of expecting as great an efficiency from voluntary evening schools, and is striving to secure a system like that of Germany.

A number of progressive manufacturers in Nova Scotia have expressed their entire willingness to allow their apprentices to attend technical classes during working hours without any reduction in pay.

This would entail the engagement of permanent teachers in each community who would devote their entire time to the work. These men would have to be carefully selected, for proficiency in their trade as well as adaptability for teaching, from those who are already engaged in industry; and they would have to receive salaries commensurate with those paid for practical work.

In order that such a system of teaching could be practically carried out, Prof. Sexton says it would be necessary for Nova Scotia employers to revise their present methods of apprenticeship.

Part-Time Schools.

Director Sexton in his testimony before the Commission, stated that in Nova Scotia, where there are a large number of small and comparatively poor communities, he believed a part-time system of trade education would be most popular, and would also meet with the heartiest co-operation of the manufacturers, who would thus help the Province educationally. In these part-time schools the apprentice or mechanic is paid for his time while attending the classes, which are more or less of a theoretical nature, when he produces nothing. The best recommendation for the actual value of such instruction is for the employer to say, "I know it will make an efficient man of you, and we will pay you just the same as if you were working for us; we only ask that you shall show us increased efficiency by working harder the rest of the time."

He thought a manufacturer might look on a man going to part-time schools as a productive unit from the time he starts. It was hardly possible for a boy to be taken green into a factory and to earn say 10c an hour at the very start. He thought a manufacturer would find at the end of an apprenticeship of three years that the apprentice had cost him a little more than he had made out of him and that if he stayed with the business he would give him back manifold the amount.

Firms that established shop schools in their factory have found that while they were training apprentices who were more or less of a financial burden, other firms had bid for those apprentices before they had finished their period; while a boy might be earning from 8 to 10c an hour during apprenticeship, after he had been through about two years of it he was a productive unit, and if another manufacturer offered him 15c an hour the boy was liable to leave his benefactor and go to the other manufacturer. Hence there must be hearty co-operation between the manufacturers in any particular industry, whereby they will all assume some part of the burden, so that some will not be doing it for the benefit of the others.

Trade Schools.

As to purely trade schools, Prof. Sexton thinks these could be established in large communities where a number of people are seeking to enter the same trade; these persons could be examined as to fitness for a trade, or go on trial for three months to show their fitness. As to limiting the number who enter such schools to the number who could find successful employment in the locality, such a course would be most undemocratic, as he did not believe it right to tax the whole community to provide a limited number of journeymen for a single trade.

While a trade school properly conducted can turn out skilled journeymen of as high an order and in as short a time as evening classes, as had been done in a few places, it entailed great expense; the cost attending the trade school in Milwaukee being from $300 to $400 per year per man. The time of the student in the trade school has no value, while that of the apprentice has.

Evidence and Means of Progress.

Employers are recognising more fully every year the good work the evening schools are doing, and are looking to the Department for men to fill special posi-

tions. A number of the students have been placed in lucrative positions, and no dissatisfaction has been expressed with any of the recommendations of the Department. The newspapers have also recognised the great value of the practical education given in the schools and have been most generous in giving space at all times to comments on the work.

The fullest publicity is needed to show working men the advantage of the school, and personal canvass has been found the best method. The average mechanic is hard to get to school, but sticks well when he gets there; but if they do not get money-earning value in the way of short courses and the most practical education they will not stay.

Continued progressive courses are necessary to keep men year after year. The lecture method is not suitable as the men cannot take notes; the recitation method can only be used sparingly, especially when pupils of different ages are in the class; hence the problem method is the best. Simple teaching from the book gives poor results where models and machines are needed; laboratory apparatus must be used with other instruction. Good text-books are difficult to find, hence special ones have been prepared for some classes.

Need of Technical Text Books.

One of the great troubles experienced was the lack of good text books, which must be intensely practical, condensed, absolutely up-to-date and fitted for the needs of small zones in which the practice of the trade is the same. Correspondence school text books, while thoroughly up-to-date and practical, do not fit community needs in a limited zone as they should in order to be most efficient. Director Sexton therefore prepared text books in mathematics for coal miners, taking examples for practice from the N. S. industry, also books in electrical laboratory work and on dynamos and electrical machinery. These were prepared in mimeograph form and sold to students at cost. Drawing supplies had been borne by the Department and furnished to students at cost, which is about half of what stationers would charge. In these ways the College text books have been of the greatest service to the Province.

Correspondence Courses—Weakness and Remedy.

On careful study Director Sexton found that the correspondence school text books and courses are not based on the soundest educational principles, but are arranged so that the student will not become dissatisfied with the course before he has paid the whole of the tuition fee. The examples in the correspondence courses are modelled so closely on the text book that almost any man with a straight head could read the text and then do the examples. The formulæ used are given without the reason for the deduction or the reason for the application. In many cases students have to remember many formulæ, when they could derive information with a simple knowledge of algebra. The difference between the courses given in the Universities of Chicago and Wisconsin and those of the correspondence schools is that the former are based on the soundest educational principles, and about 70%

of the students who enrol finish the course, while only from 5% to 10% of students in correspondence schools such as the International and American finish the course.

Believing it possible to teach by correspondence if sufficient care is given to planning the courses, it is the aim of the Technical College to establish correspondence courses such as are needed all over Nova Scotia, increasing the number as rapidly as the demand can be met. The courses in Wisconsin and Chicago Universities can be offered to the students for at least one half the charge made in regular correspondence schools.

From Nova Scotia between $60.000 and $70.000 a year go to the International Correspondence School at Scranton, while the total amount expended by the Department of Education in Nova Scotia for supporting the Technical College and technical schools throughout the Province is about $40.000.

Federal Aid Essential.

Professor Sexton considers that while the Nova Scotia Department has done obvious things, and supplied a few of the insistent demands of that Province,to do the things which they know should be done would require a large amount of money, more than the Province will be able to afford fo ia number of years; hence, he hopes that the future development of Nova Scotia will be assisted either by private endowment or through Federal Government grants.

SECTION 4: OPINIONS OF TECHNICAL TEACHERS AND OTHERS.

The Principal of the Evening Technical School in Sydney reports that one of the greatest difficulties in carrying on the technical classes was due to the long shifts the men are required to work in the steel plant, and the fact that many are required to work one week on day shift and the next week on night shift. The Steel Companies' officials have promised to co-operate to relieve this situation by giving special dispensation in the matter of time to those who require it; but the Principal complains that very few men have been granted this dispensation, even where they have been willing to have deducted the time spent in the evening classes. He thinks it would not be unreasonable for the Steel Company to pay for the time spent in the classes as an encouragement for the men to attend, because many large corporations carry on schools of their own or pay for tuition of their mechanics in schools such as this in Sydney, and it has been shown that men who attend such evening classes gained increased efficiency as mechanics, so much so that the company is more than repaid for the small amount of money it would cost them to encourage this kind of work. The school in Sydney has been very fortunate in securing the personal good will of superintendents in the various industries, many of whom had personally urged the men to attend the evening classes.

Value of Mechanical Drawing.

Mr. George J. Mosher, Halifax, a skilful mechanic who has taught mechanical drawing in the evening technical schools, advises that the student, young or old, who is desirous of learning mechanical drawing and has perseverance enough to spend 150 evenings for lessons such as those given under the direction of the Nova Scotia Technical College, invariably makesh is mark in his chosen calling. He adds that in the aggregate the results will be of incalculable benefit to the community.

Mr. P. W. Macdonald, teacher of mechanical drawing at Sydney, states that in sparsely populated districts it is unnecessary to divide the course into elementary and advanced classes except where the enrolment reaches considerably over eight students. The instructor should be capable of specializing the work of the individual so as to conform to his desires as to which branch of the subject is best adapted to his work, the divisions broadly being: machine drawing, building construction, sheet metal and structural drawing, which may include plumbing, heating and ventilation. The advanced courses must entirely specialise upon each of these branches. In the elementary class the work should begin by drawing a few lines to each of the scales on the regular triangular, mechanical engineer's scale; next should be the proper handling of other instruments, progressing from single views of simple objects, preferably machine parts drawn to a suitable scale, to the application of established conventions by which different views of one object are expressed. After a few lessons in the projection of the various planes, elevations and cross sections of simple concrete objects, the student should be well drilled in the study of the projection of unfamiliar objects so that he may be able to promptly recognise the peculiar difference between a perspective view in its various details and the conventional view of the draughtsman. A thorough drilling in projection, in sections and triangular developments is most essential to one who would learn to interpret quickly if a drawing be at all complex. The latter portion of the course should consist of work in copying a few standard specially selected drawings of simple machines, preferably assembled views. The advanced course should proceed with detailed drawings of simple machine parts which would, put together, form a complete simple machine. From these details and with as little reference to the machine itself as possible the student should proceed to make a complete assembled drawing; next a complete detailed drawing of a machine having a pair of gears, babbitted bearings, a few bushings with cotters, keys, shaft and coupling, worm and worm wheel, and cast iron frame with ribs and webs, well designed. Next the assembled drawing of this and, finally, as an examination each student should be given a machine drawing purposely incorrect in conflicting dimensions, misplaced, incomplete and erratic projections and improper conventions, such as a sign intended to indicate a countersunk rivet on one side when that were obviously impracticable. Such a lesson selected to carefully teach various points involved in previous lessons would provide a fine exposition of the results of the work both of instructor and pupil. He adds that the technical colleges have omitted to equip students with these ready methods which crystalize and standardize theoretical design and practical expediency into ready-made expressions.

Electrical Equipment Required.

Mr. W. W. Casey, instructor in electricity at the school at Amherst, says that an expenditure of from $2,000 to $3,000 is required to equip the laboratory with apparatus suitable for making complete illustrations and that the use of apparatus is very necessary, as problems learned from text books without experience soon fade from the average mind. For this reason the personal teaching system can be made far superior to any correspondence school system, though their text books may be of the best. The rapid increase in lighting and power plants is creating a demand for men capable of super ntending such work. Men employed in the ordinary electric light station become either machine tenders or wiremen and have no means of attaining the necessary technical knowledge to fit them for superintendents' positions. He adds that in view of the fact that many young men after obtaining the education had moved to other parts of Canada, it would appear to be a matter for the Federal Government to take up.

Views of Mine Superintendents.

The Mine Superintendents after discussion on the subject of technical education for miners, sent the Commission a memorandum of their views. Owing to the distance of the Cape Breton coal fields from large centres of population and the apathy of the mining population towards the advantages of technical education, it had not been found hitherto possible to provide lasting and adequate provision for technical instruction in mining and probably the most effective and serious instruction had been given through correspondence schools. The Technical College in Halifax, they stated, is of no assistance to the rank and file of the local mining population and under existing conditions the advantages of its instruction could only be given to those who had time and money to go there. Good work had been done by the evening mining schools, but latterly these had not been attended as largely as they might have been and had failed to reach in any large numbers the lower ranks of mine workers, and there had been a decided lack of enthusiasm and emulation in the work of these classes.

They thought the linking up of these evening mining schools with the Technical College or with some Universities on the line of the University extension movement in Britain might assist in evoking interest, and means should be provided by which the youthful and oft time indigent aspirants, while earning a living, could make their way by study and perseverance from the lowest grade of the work around the mine to the diploma of a reputable technical college. Correspondence schools in connection with the Provincial Technical College might assist in the process of selection, especially if accompanied by a scheme of distinctions and bursaries. Very often the aspirant for applied technology is deficient in elementary mathematics and English which could be best given in the form of evening continuation classes, and a graduated course of instruction might be followed ending with admission to the Technical College or University. Useful instruction which might bear fruit in the reduction of the accident rate could be given to working miners by elementary lectures on the constitution and behavior of the common mine gases; the theory of blasting coal and systematic timbering; in obvious

precautions for lessening accidents from falls of roof and sides and on the haulage planes, and such matters, combined with instruction in first aid, fighting of mine fires, etc. The best results have been obtained by short courses of interesting lectures in simple language illustrated by chemical and mechanical experiments, chosen more for striking demonstration of facts than for scientific value; thus the explosion of a mixture of fire damp and air first without and then with an admixture of coal dust provided a more effective demonstration of the dangers of coal dust in a mine than would a lot of dry reading.

Useful Lessons from Great Britain.

The method adopted in British coal fields through the medium of Saturday afternoon mining classes is commended; such a scheme could only be worked in Cape Breton by having a central school in Sydney which would serve the surrounding collieries, and the new academy at Sydney might be used as such a centre, the ordinary academy staff being re-inforced by special technical instructors selected from around the collieries, and thus be a branch of the Provincial Technical College. In Britain evening classes were held at most of the mining centres, the syllabus of the South Kensington Science and Art Department being used, teachers' diplomas issued, and examinations controlled and diplomas and medals granted by that department. In many cases headmasters of elementary schools have qualified themselves to conduct these classes, which include subjects such as the principles of mining, mechanics, elementary physics, etc., and this form of teaching has proved itself very efficient. There is a certain advantage in the central control of the Science and Art Department which standardizes the teaching, safeguards the secrecy of the examination questions and results and promotes a spirit of rivalry among the students.

CHAPTER IV: AS TO STEEL, IRON AND COAL.

SECTION 1: INFORMATION OBTAINED FROM Mr. GRAHAM FRASER AT NEW GLASGOW.

The story of the beginning of the Steal Industry in Nova Scotia is a very interesting one. It began with the experience of Mr. Graham Fraser, who in earlier days was connected with both the Nova Scotia Steel Co. and Dominion Iron and Steel Co. with the former of which he grew up and was, for some years, Managing Director.

Mr. Fraser served apprenticeship at blacksmithing, and for a time ran his own shop. He was all the time getting experience by doing things. He had not much time for reading, but learned about the qualities of metals practically. After the Nova Scotia Steel Co. was organized, a Blast Furnace Co. at Ferrona was formed, and later the property of the General Mining Association in Sydney was bought. All these Companies came together at different dates and formed the Nova Scotia Steel & Coal Co.

In the early days, when they wanted to know anything about the composition of steel they hired a chemist and took his analysis, until they became familiar enough with the ingredients to know what was right and what was wrong. The same method was followed in connection with the blast furnace, the lime and ore etc., so that although Mr. Fraser was not himself a chemist he could tell pretty well from an analysis whether an ore could be easily reduced in a furnace; but he had to put it through the furnace to find out whether it was really right or not. When they did not know, they hired a man who did, and after hiring him they picked his brains all they could.

Need of Practical Experience.

In later years the superintendents who did the work were all men who had had practical experience. Mr. Fraser always felt that he was in a position to help them out after he himself had had some experience. It made the work go very much easier when the Superintendents and foremen understood their business; and men thoroughly trained in their jobs bring an element of safety.

Mr. Fraser says that workmen need intelligence as to the job, or some sort of common sense. He approved strongly of night schools, saying that the boy who goes to them and wants to learn will come to the top and be taken notice of. He did not think anybody in his line of work would get as much help from a correspondence school as in a night school taught by a practical man.

Mr. Fraser thought there was room for extension of iron and steel working in Nova Scotia, on account of the rapid growth of Canada. When the industry was

started in 1882 a carload was a big order; the figures of production were very small compared with to-day's, and there used to be about as much imported. He thought our men ought to be and are as well trained as those in other countries. He said that one of the best assets to-day in the Nova Scotia Steel Co. were the young men who came in with him 25 years ago and grew up with the business.

Value of Night Schools.

Looking back on his business he thought it would be a good thing to provide a chance for every young man between 15 and 17 to go to night school. He was undecided whether compulsory attendance would give as good boys. The night schools provide a way for the education most boys can get while working, for they cannot all go to the higher technical schools on account of having to work. He would advocate night schools even if boys never got further than that, but the chances were that a boy who got on well at night school would soon be in technical study at Halifax or McGill, and even a boy who had no talent would get some good at night school. He thought a boy ought to make up his mind first what he was going to be, and if he chose to be a mechanic he should be at work, at 14, 15 or 16 at the furthest, for he had not time to follow the High School work of the Colleges any further, and he felt a boy had better get hold of the mechanical part first. Speaking for himself, after leaving school without technical education, and with very little of any other, if he had to go through life again and the choice was up to him between theoretical education and practical education, he would choose the latter. Give the practical, he said, and give as much technical as you can along with it. He believed in having the practical subjects and if there was not time enough for them along with the so-called literary studies, eliminate the latter. But we cannot all be mechanics, and a boy should make up his mind as to what he wants to do, and study in that line.

Part-Time Plan Questioned.

Mr. Fraser did not think that six months work and six months schooling, or week about, for a boy of 16 would be feasible: that plan would not compare with the Common School. From what he had seen in the technical schools, while they were alright up to a certain point, they did not get down to practical work such as could be found in the plant itself. Citing the case of a boy who had gone to the Steel Works at Sydney and had remarked to another alongside of him, "Now I can learn", he thought there was an inspiration or something that the smelter man had in him so that he could see into the furnace as if by instinct; it was the real thing as opposed to something like an experimental model.

Mr. Fraser was not sure that he would shorten apprenticeship for a boy who attended Night School, or offer a bonus for so doing, because it was to his own advantage to study at night. While the school could teach a number of things, a man must actually do the work to learn the operations; then if he understands the principles he can carry on the operations afterwards and do his work more intelligently and be training his men so that he is really ready to see further than the job he is working at.

SECTION 2: INFORMATION OBTAINED FROM Mr. THOMAS CANTLEY AT NEW GLASGOW.

Mr. Cantley has been identified with the Nova Scotia Steel & Coal Company for 25 years, and is now General Manager.

Mr. Cantley, as General Manager of the Nova Scotia Steel & Coal Company, is in command of over 5,500 men employed at Wabana, Newfoundland, Sydney Mines, Cape Breton, and New Glasgow. As regards intelligence, efficiency sobriety and interest in their work they were unequalled by any similar body of men in Canada. They were directed by groups of superintendents, managers and foremen, all of whom had grown up with and had been trained while in the Company's employ. Individually and collectively, he considered them the very highest type which this country has yet produced. All of them worked together as a family of big boys whose constant aim was to advance in every possible way the interests of the corporation which they served, and he was proud to be their chief.

Need of Technical Education.

The need of technical education and training along the special lines incidental to the Company's business was keenly felt by the superintendents and all the executive officers of the Company and also by a considerable proportion of the men. For instance, there were neither schools nor any other facilities for acquiring the best and most up-to-date knowledge in connection with the many problems that enter into the Company's daily work. Beyond the various text books published by writers on technical subjects, there was nothing to guide them in the various problems daily presented to them in connection with the designing and turning of rolls, the flow of metals during the rolling of iron and steel, heavy forgings, drop forging work, or in connection with machine designing, screw and bolt cutting, the production of bolts and nuts, hydraulic engineering, or the construction, working, or upkeep of electric apparatus. The same might be said as to air-compressor power and the economical production of steam power from coal-fired boilers. Nor is there any opportunity for acquiring really practical up-to-date information regarding the most economical methods of re-heating ingots and steel billets, or estimating the amount of power necessary for driving rolling mills, knowledge in regard to all of which was of the utmost importance from day to day if their work was to be made commercially successful.

The apprentice system in this country is practically obsolete so far as the manufacturing operations are concerned, except in the cases of machine shop and foundry employees, and some method of instruction must be found to take its place. Continuation classes and night schools have gone a long way in other countries toward supplying the technical knowledge required, and it is imperative that similar classes be inaugurated in this country if our manufacturers and workmen are to keep pace with the foreigners whose competition is every day becoming more formidable, and whose efforts to capture the Canadian markets are yearly becoming more and more aggressive. The reading of technical trade papers is a great help and is taken advantage of by all the brightest of the superintendents

and foremen; but this only touches the fringe of the matter, and must be supplemented by competent, practical instructors in charge of the evening classes. If these facilities were available they would be taken advantage of by all the foremen and the younger and more energetic and ambitious of the workmen.

Extent of Company's Operations.

As to the extent of the operations of the Company Mr. Cantley said that the wages distributed in the present year would be approximately $3,000,000; that over 1,000 men are employed at Wabana, about 2,800 in connection with the collieries and shipping piers at Sydney Mines and North Sydney, about 800 more in connection with the iron and steel department at Sydney Mines, over 950 at the New Glasgow mills, about 100 in connection with lumber operations of the Company in Pictou County and Newfoundland, and the same number quarrying limestone and dolomite at Point Edward, C.B. The Company employs regularly 15 large steamers, two being owned, and the others time-chartered by the Company, these having a total deadweight carrying capacity of 75,000 tons. These vessels would handle this year over 1,000,000 tons of water-borne freight, made up of ore and coal freighted from Wabana and North Sydney, while the freight carried by the Sydney Mines Railway of the Company would exceed 1,800,000 tons. The freight charges paid the Intercolonial Railway for material carried by that road exceed $300,000 per year. The ore-loading piers at Wabana are capable of loading in three hours steamers of 7,000 to 8,000 tons, while the ore-discharging piers in North Sydney were actually discharging ore cargoes at the rate of 4,000 tons per day. The coal-discharging piers at the same point are capable of loading 6,000 tons of coal into steamers engaged in the St. Lawrence trade at the rate of 1,000 tons per hour. These same steamers are discharged at the Company's coal-receiving docks at Quebec and Montreal at the rate of about 5,000 tons per day.

The Company's Welfare Work.

Employees' Relief Funds were maintained both at Sydney Mines and New Glasgow, the amounts annually collected and distributed being about $14,000 in the case of the Sydney Mines Fund and about $4,000 at New Glasgow. Both Funds had substantial balances at the end of last year—at Sydney Mines over $3,000, at New Glasgow over $6,000. This latter Fund has now been in existence for over 22 years and is managed by a board of trustees, one of whom is the nominee of the Company, the remainder being from the men. The Company contributes to both Funds, and the executive committee of the Board of Directors now has under consideration a scheme for extending and enlarging the scope of these societies.

Regarding the housing question, Mr. Cantley stated that the Company own no houses in New Glasgow, where a large proportion of the employees own their houses. At Sydney Mines the Company own about 500 houses, but latterly its policy had been to encourage its men to own their dwellings and to this end had offered lots to bona-fide workmen at nominal prices, and had also advanced money for house building at low rates of interest which was repaid by such monthly instalments as the men can meet. This policy has resulted in the construction of

of over 200 houses by employees of the Company, and has been of great aid to thrifty men. It tends to improve the morale, and is an incentive to thrift, sobriety and ambition.

Technical Education Discussed.

Mr. Cantley deals with this question under four divisions: (1) What is it? (2) Have others adopted it? (3) Do we need it? (4) How can it be got? He defines technical education to be such special training as will qualify a person to make the greatest success in the particular branch of productive industry in which he is engaged. The education of all who are in later life to be engaged in productive industry should be measured, and to a large extent guided, by the general requirements of that branch of industry to which they intend to devote their working years.

Before the need of technical instruction can possibly be met, our present school system must be reconstructed. More time must be given to, and more thorough work done along lines of primary education; in short, our mining, manufacturing, agricultural, and fishing population—these comprising practically all the working population of Nova Scotia—must be given a much more thorough ground-work in reading, writing, arithmetic and mathematics. All high education of every kind must be relegated to the High School and University, the former being made compulsory and absolutely free both as to tuition and text-books. We are not concerned as to whether the Universities should be free or not, for the men who are thoroughly in earnest in their desire to acquire a higher classical or college education can usually find means of acquiring it, and they will be no less better men if the getting of it entails some sacrifices.

What Germany Has Done.

To the second question, "Have others adopted it?" the answer is, Yes. Germany is probably the most conspicuous example. The great change which came over the national life of the Empire after the war of 1870-71 resulted in the universal discussion of the best means of education for the German work-people, and took practical shape some years later in the adoption of an entirely new system of education for the wage-earning classes, many of whom at that time could not write, and were entirely ignorant of foreign inventions, scientific discoveries, or technical knowledge of any kind. To realize the advancement made by the industrial population of that country and their condition to-day, it is only necessary to compare the present extent and the growing importance of every class of industry in Germany. The best thought, the keenest intelligence, and the greatest energy of the nation have been concentrated on the advancement of its prosperity. The life and the energy of the people has for the past 35 years been devoted to the task of raising their industrial population to a higher plane of efficiency. The industrial growth of Germany may be measured by the amount of fuel consumed. In round figures this increased from 100,000,000 tons in 1895 to over 200,000,000 tons in 1907; and the exports of the country, which in 1889 stood slightly under $900,000,000, had increased in 1908, to $1,750,000,000. During the same period the population

increased from 49,000,000 to 63,000,000; or, in percentages, while the population increased less than 30 per cent., the export trade—almost entirely manufactured goods—had practically doubled.

Causes of Germany's Success.

Close examination of the causes which brought about this German success will show that it is owing to the fact that nothing is done in a haphazard way; system, method, and inflexible law are the factors which have brought about these results. Some of their methods may not appeal to us, who will regard them as tending to sink individuality and personal initiative. The German, however, looks at the nation itself as the individual, and all are trained to act together so that the best results can be obtained. Their primary schooling is compulsory up to the age of 14, and is followed by compulsory continuation and night schools. Employers are compelled by law to send their apprentices to the continuation schools and to evening classes for artisans, these classes being organized by the local authorities. Some of the Technical High Schools give pupils who look forward to executive positions a thorough technical and theoretical knowledge in such trades as they desire to follow, and further teach them how to conduct the business of a firm, the handling of men, and the preparation of estimates.

What Great Britain Did.

Twenty years earlier than Germany, Great Britain had learned that her workmen lacked artistic taste and knowledge, and to meet this need the Government contributed large sums towards Science and Art departments. These, however, dealt only with one branch of their industrial problem. In about 1880 the industrial leaders of the nation realized that the principles of science and art as applied to manufactures, as then taught in the technical schools of the Continent, were revolutionizing the industrial life of the Continental nations. A Government Commission of Enquiry reported in 1884 recommending that the technical, manual training and elementary sciences be undertaken by secondary schools. This report gave great impetus to technical education, and resulted in the organization of technical classes in Birmingham, Manchester, Huddersfield and other great manufacturing cities. The Technical Instruction Act of 1889 a little later formed the basis on which the local authorities and municipal councils dealt with this matter, for which purpose they might levy rates to the amount of a penny in the pound. Still later this was supplemented by grants from the surplus customs and excise revenues.

In 1894, the British Government appointed a Commission on Secondary Education, the outcome of which was a bill passed a couple of years later by which technical or secondary education was left largely to the local authorities, but controlled by an Education Department under a responsible Minister. There are now in that country a great number of special colleges devoted entirely to higher technical education. The Guilds of London a number of years ago took up the same class of work, and maintain several colleges in that city.

In Scotland, much earlier than anywhere else in Britain, the State took up the matter of organizing public instruction. Their system of primary education has made that country the most striking example of the beneficial effects derived from diffusion of knowledge. Since 1893 elementary education in Scotland has been absolutely free, local school-boards being placed under obligation to enforce attendance, the compulsory age-limit being 14. The attendance record in Scotland is the best in Britain, though still far behind that of Germany. During the past fifteen years great progress has been made in secondary education, continuation schools and evening classes being a great factor in the industrial education of the people.

Progress on the Continent.

In France, Belgium, Holland, and Sweden, handicraft instruction is included in the elementary work.

Switzerland, perhaps earlier than any other country in Europe, successfully solved the question of primary and technical education, and her engineering products to-day show the grand results gained by it. That country now has an excellent system of evening continuation schools, in which the children who leave school at 14 can attend night classes devoted to technical training.

In short, in practically every town throughout Europe (omitting Spain, Portugal and Russia) evening classes are established for the teaching of drawing, painting, designing, and the elements of science, or so far as they apply to their special industries. These schools are in the main either supported by the Government or by the municipalities.

In Vienna, for example, are found practical evening schools for carpenters, joiners, metal-workers, and others; while the best special schools, known as Technical High Schools, for the training of masters, managers, engineers, and industrial chemists are found in Germany. For instance, the Munich Technical High School cost nearly $1,000,000, and the annual cost of maintenance is about $100,000, while a similar institution in Berlin cost nearly $2,500,000. Some of these Technical High Schools deal with a list of 150 different courses of instruction.

From the foregoing it will be seen that the leading nations of Europe, without a single exception, have for years devoted large sums to the question of technical education, and that the best results have been obtained from the Continuation or Night Schools, attendance at which in some of the countries is compulsory. Very large sums of money have been devoted to this subject, and the results are apparent in the great industrial advance made, particularly by Germany, France, and Switzerland during the past ten or fifteen years.

What Nova Scotia is Doing.

In Canada, as a whole, little or nothing has yet been done to provide technical education for our working people. In this Province, the Government of Nova Scotia has devoted a good deal of attention to the higher education of our mining population, and with most excellent results, for I believe that we have among the coal-mining population of this province a higher proportion of

skilled coal-miners than any other section of the British Empire—men who through the evening schools and otherwise have studied the technical side of their work, gone up for examination, and obtained certificates. The Government of this Province is entitled to very great credit for the facilities which it has placed at the disposal of our mining population; the men are entitled to no less credit for having taken advantage of it; and both the coal-mine operators and men are to be congratulated on the results obtained.

Up to a few years ago, beyond the establishment by the Government of Nova Scotia of evening classes and other facilities for the training of our coal-mining population, practically nothing was done towards technical education of any other class of our people, although the population engaged in agriculture, manufacturing, and in the fisheries stood in no less need of education along the lines incidental and necessary to their several vocations. A few years ago, however, the Dominion Government, by a system of travelling dairies, did an enormous amount of good, and probably added millions to the value of the dairy products of this country. A little has also been done in connection with the curing of fish though there is considerable diversity of opinion as to the success of that venture.

Vocational Work in Public and Special Schools.

The Public School authorities of this Province—with whose grossly overburdened curriculum we have small sympathy, attempting as it does almost universal instruction so superficial that it does not abide, but is largely forgotten—deserve honorable mention for one really meritorious action, namely, the introduction of Manual Training and Domestic Science classes in the public schools of the cities and larger towns. These classes have been well conducted by capable and enthusiastic instructors, are most popular with the scholars, and are doing much to train both boys and girls along really practical lines.

The Government of Nova Scotia, realizing the needs of our industrial population, established at Truro an Agricultural College and experimental farm, which, under the management of Professor Cumming, is doing excellent work. Later, Premier Murray's Government took up the question of technical education for artisans, the system comprising a Technical College at Halifax, and a system of night schools throughout the leading industrial centres of the Province. The former has not been in operation long enough to enable an opinion to be formed as to its value, but it is undoubtedly a step in the right direction, and cannot fail to be of material benefit to such of our men as can afford to take a thorough scientific educational course.

The system of Night Schools throughout the Province has been of undoubted advantage, and this is the system to which we must look for the really effective, efficient, and practical technical training and uplifting of our working population. The school must be brought to the man, and its work must be done after working hours, though when night-work is carried on regularly as at iron and steel plants, both day and night sessions must be held.

What Canada Must Have.

This is a country abounding in undeveloped possibilities, and if it is to make that progress in the industrial world which its extent and resources fully warrant, the advantages to be derived from technical education as enjoyed by their fellow workmen in Great Britain and on the Continent must be put at the disposal of our craftsmen of all classes. Our people are years behind in the race, and the subject demands the closest attention of our ablest men, both in public and private life.

The fundamental requirements of our agricultural, industrial, mining, and fishing population are: *Thorough grounding in the primary schools*, which should be absolutely free of al cost to the pupil, the attendance at which up to 14 years of age *should be compulsory;* and *night schools for technical education*, which should be established in all the towns and villages throughout the land, and must also be free of all cost to the student.

The latter branch of education is one of such magnitude that it can only be effectively dealt with by the Federal Government, both as to its organization and support. Adequate facilities such as are given the workmen of almost every European country must be given to all our people absolutely without money and without cost.

The agricultural and industrial life of this new country must be developed. Our men must be trained so that they shall be farmers, miners, engineers, shipbuilders, iron and steel makers, smiths, woodworkers, and house builders; in short, trained men able to lead and maintain the supremacy of Canada in all the various phases of industrial life necessary to a great and growing civilized country. Such training they must have and Canada can no longer afford to neglect it.

Canada Better Prepared than Germany was.

In answer to other questions by the Commissioners, Mr. Cantley stated that our people are much better educated than the Germans were shortly after the Franco-German war, and therefore we are not so far back to start with, for practically all our people can read and write and are proficient to at least some extent in arithmetic, while a large number of Germans of the artisan class 40 years ago were unable either to read or write. Mr. Cantley added: I think Canadians might in 15 years, if they had the opportunity, do as much as Germans took 35 years to do. The German is a slow thinker, but he is a better plodder than the Canadian; I think he is a born plodder. I think the common schools have about the right proportion of manual training subjects and literary subjects, but I think there are too many subjects in our schools, and that our curriculum is designed for school teachers, the leaving examination being directed to their ability for school teaching. I think the schools should ground pupils thoroughly in reading, writing and arithmetic; but they are not so grounded, for not 30% of boys of 16 and 17 can correctly add up a column of 40 or 50 figures, while their writing is horrid. I do not care whether they can spell or not, it does not make a bit of difference if a boy spells a word four different ways in one letter, so long as he

spells it so that I know what he means. If any nation has been kept poor because of money spent on education, it has not been found yet. I cannot see how Canada can afford not to educate her children,.

Compulsory Attendance for 90 Days.

I think compulsory attendance at school should be exacted for at least 30 days in the year for all our artisan population until they reach 18 or 19. Take the military service in Germany and France; there they have to serve three years. I would make all our young men put in 30 days a year for 3 years in continuation classes. They would not all be dunces, though some would be such all the days of their life, for you cannot make more out of them than the Lord made out of them when he made them, yet it wou d help a great many, and give them facilities. Very likely a man who is relatively a dunce would get more out of life by such training; it would not hurt him anyhow.

Germans and Canadians in Competition.

In spite of the tariff and bounties on steel products, the Germans sell a large quantity of goods in this market. Practically the whole of the iron and steel trade is concentrated there. The principal factor with them is the lower cost of labor. In some branches perhaps the German artisan is more efficient by reason of his Industrial Training and Technical Education, than is the Canadian artisan, but on the whole I do not think he is. I think the Canadian is a much brighter man. One thing that keeps Germany down is the enormous consumption of beer. One of our Highlandmen is better than three Germans in the matter of physique. and if our men had the training Germans get, it would help our people, and we would more likely be able to retain this market for ourselves in iron and steel. I think we could control the market; though it would take a long time to get the educational facilities that they have. The trouble I see is the difficulty of getting men capable of taking charge. In the meantime, no matter how gifted we may be in resources, this must naturally be slow of development.

Would Canadians Stand Compulsion?

I do not know whether our Canadian people, with their views about liberty, would submit to compulsory school ng for three years after 14; I think they ought to. Our liberties are being curtailed year by year, in all sorts of directions, some of which are good and somemore or less indifferent. Technical Education having been in operation in Germany for 35 years there are undoubtedly a larger number of skilled workmen on the market than before, which I suppose would have a tendency to reduce wages, just as an increase in the number of workmen wou'd; but one thing that keeps down the cost of labor in Germany is the enormous immigration from Norway, Sweden and the Scandinavian countries. As soon as these men come in, they get the advantage of skilled education. Two years after they go into that coun-

try, they have displaced and supplanted some of the native labor. I suppose the influx of immigrants to Germany accelerates the increase of skilled men on the market to compete for jobs. On the other hand, there is a large emigration of skilled men from Germany to the United States and elsewhere. I never knew of a man being worth less money in consequence of being more educated.

Skilled Work and its Reward.

The question whether the tendency would be to regard the skilled workman with less appreciation is a problem that does not worry me a particle, and I do not think it will worry the workmen. It is the style or standard of living in Canada, not the cost of living, that keeps up wages here. The standard in Germany is becoming higher every year; they are increasing more slowly than in this country, but there has been a very marked increase in each decade. The increase must be in about the same ratio as the increased cost, otherwise you would have a revolution in a short time. The invention of the necessary machinery to facilitate the production of our finished product demands greater skill than the scientific processes that enter into the conversion of the raw material into the finished product. Increased intelligence and increased ability must always bring a reward. If men have more money to spend, they will live better, dress better, and use more of everything they can buy, and thus make a better demand for all other products and industries. We are getting on pretty fast in that direction.

SECTION 3: INFORMATION OBTAINED FROM Mr. MATTHEW J. BUTLER, C. E., AT SYDNEY.

When the Commission visited Nova Scotia in 1910 Mr. Butler was Manager of the Dominion Iron & Steel Co. employing about 2800 men at Sydney, with a good many departments under superintendents. He said that unquestionably the whole enterprise hinges upon the skill and ability of the superintendents of different departments, and even with the very best financial organization and administrative ability it would go to pot as a manufacturing concern if those men were not capable. The operations are highly technical, requiring the highest possible degree of skill and experience,and a class of men of industry, integrity and ability to make a success of the whole thing. Everything does not go on without a hitch; we have our troubles, but the men are highly competent to remedy them, and do so all the time. If anything went wrong in the first instance the superintendent of the department would be called on, and he of course would look to his own department and seek to remedy it. If, however, it passed by this department it would be before the Manager next morning in the "defective output for the day," and it would be brought to the attention of the superintendent by the Manager that this department had fallen off from some defect or other After the superintendent come skilled workmen like the foremen, and undoubtedly much depends on their industry and ability for the smooth working of the establishment.

How to Get Trained Men.

A college training is a very excellent way to begin to prepare for a position as superintendent, but no college could ever educate a man for a superintendency or a foremanship; he must have the practical training, and go through the industry itself in order to develop the requisite ability. Education of course is only gaining correct knowledge and gaining power to apply it; it is simply the developing of man's powers so that he can make the best of the abilities which the Lord gave him to use, and if it fails in that it is a failure, however much instruction a man may have assimilated in some sort of fashion. Quite possibly a college would bring within his reach much more knowledge than he could gain by personal observation, though that is a debatable point. It depends on the industry of the man and what kind of a man he is. Technical Education is desirable, and technical knowledge with that is really necessary.

The automatic machinery employed enables us to dispense to some extent with skilled men. The tendency of all machinery is of course to dispense with common labor, heavy manual labor. Under modern conditions it would be impossible to produce steel in Canada without the aid of machinery, and whenever any particular portion of the work becomes of such a disagreeable nature because of difficulties of one kind or another that men cannot do it, the inventor must devise means to relieve the men of that disagreeable, onerous and nasty job, if it may be so described. Wherever it is possible to cheapen the production of an article, whether by means of the hands or machine, the natural law operates, opening larger markets, bringing a greater consumption, and other opportunities for labor in another direction. That is the history applied to the arts all the way through these works and Mr. Butler was sure the wage-workers were getting their share of the progress.

Conditions of Production and Sale.

Situated at the very eastern end of the Continent, with a very long haul upon its goods and a heavy burden of transportation to bear, this Company must study economy to make the ultimate success all hope for. We have here large quantities of coal, and we follow the natural law of bringing the ore to the coal in the steel-making business, but we have the handicap of long transportation, and with a sparsely settled country between here and our market, the development of which is slow, we get scarcely any local consumption at all for several of our products. Practically our nearest point is Montreal; a small quantity goes to St. John, but the bulk of our products go to Montreal and points west of that. That is somewhat of a handicap upon Sydney as an industrial centre. Its advantages are that it is close to the iron ore, has cheap water transportation from the ore mines in Newfoundland, and the coal is plentiful. On the other hand, owing to the small size of the City of Sydney as yet, the labor question is such that it will always be a matter of difficulty to get emergency crews, whereas in a large centre such crews are always handled without any difficulty.

This plant is growing. Before this time next year it will be increased by one-third: the year following it will be still bigger, so that in the course of four

or five years the number of employees about Sydney will be doubled. It is bound to be so; we must keep up our growth commensurate with the growth of the machine.

High Character of Workmen.

Mr. Butler said the efficiency of labor would be improved if it were being trained meanwhile by supplementary means; and he added, "I would like to say something about the character of labor that the Island of Cape Breton produces. I have not been here very long, but I do think that for fine-looking and brawny men it would be difficult to find anything to compare with them anywhere else in Canada. The type of men working in the mines, in what you might call the lower scales of labor at present, will be found here in the higher walks of life altogether when the happy day of proper industrial conditions arrives. At present the men have to take what they can get. There are fishermen, and there are miners and lumbermen; unfortunately no farmers. We need and must have a better farming population and a larger country population in order to make good our industrial efficiency in that respect here."

The Chairman said he had scanned with uncommon care the faces of more than 100 men that day as he walked around, and they looked not merely intelligent, but like men who had themselves in hand in every way.

Mr. Butler replied:—"Well, as I say, so far as the native population are concerned they are a better-looking race of people than you will find anywhere else. Why they are so is beyond me. A great number of men are Nova Scotians, and I think they are a superior class of men all the way through." As an employer of labor here Mr. Butler would favor any opportunity for young men getting further training at nights. He thought the facilities here in that direction had been appreciated.

How Apprentices are Dealt with.

Ordinarily we don't exact that apprentices put themselves under indentures. Although there is a form prepared for the purpose, unless a father brings his son and says he would like to have him indentured, the indenture is not entered upon; it seems somewhat contrary to the genius of our people to indenture. As a general thing, however, I think most young fellows stay the full time and become journeymen.

Training of Engineers.

Mr. Butler:—"I would like to say something about what I think of the teaching for the Engineer courses in the Universities of Canada. The whole of the courses have been produced within the past 30 years, and in consequence probably a great deal of experimental work had to be done in order to find out just what a technical course meant. I am sure that nearly every engineer who has had occasion to deal with the graduates of the Technical Colleges has been somewhat disappointed in the product turned out by the colleges not only of Canada but of the United States, as well as the Technical Colleges which give the degree in Applied Science and of

Engineering. About 10 or 15 years ago there was a strong effort made to specialize courses, and they began turning out men in what they called Civil, Mechanical, Mining and Electrical Engineering.

Specialization Should be Dropped.

"In studying the results of those courses I reached the conclusion that all such specialization should be dropped from college courses altogether, as being practically an absurd thing for a college to attempt to do—to turn out engineers at all; that all they could hope to do was to teach a student right habits of thought and work; how to use his books; where to look for information; accurate familiarity with the elementary principles of science and mathematics. I do not think a student ought to go out with that sort of bewildered expression on his face that says, 'It seems to me I have heard of that before, and I ought to be able to do it.' He ought to go out with a certainty that he does know the fundamental natural sciences that govern all engineering. He should not go out with the idea a young graduate brought to me—that he was suitably equipped to be put on the staff of the Quebec Bridge, which is the most difficult problem now in our field requiring solution. It seems to me that a young man should be sent out knowing the rudimentary things thoroughly and well. He should not go out with half-fledged ideas—a smattering of this and a smattering of that, and no certain knowledge of anything.

"Now, I am afraid that that is the difficulty under which our graduates labor. There is a notable deficiency in the ability to write a letter; in the ability to express themselves in ordinary, simple, plain English; to 'tell the story,' if it is only an application for a position—to tell it properly and directly. I think you will find more errors of grammar, punctuation, spelling and bad penmanship in letters from technical college graduates that you ought to find. These are some of the conclusions that seem to me are justified by my last ten years' experience with college graduates from technical schools of Canada.

Cause of Poor Conditions.

"These conditions arise partly from bad preparation before they start in engineering courses, and partly from the fact that they are trying to do too much, to cram too many things into their heads in the four years. I don't want to convey any false impression. They have done an immense amount of valuable work. Some of the best engineers in the land today owe their training to the colleges; but these men have supplemented their deficiences by hard work after they got out. Some of the best men I know of have taken two years in the college and covered the educational features of it; then they have gone to work for a year or two, and then completed the course in college. These are well trained, capable men, and learned very rapidly to make themselves most useful. I do not think the manipulation of machines and things in laboratories is at all equivalent to that sort of work in factories. A young man goes into the mechanical engineering in a college and plays with a piece of steel on a lathe to turn out a bolt. After a certain amount of work he learns to make the bolt, but the thing he has not learned is that he must

make that bolt accurately, properly, drilling and turning it out at a price that will enable his employer to live and make a profit. That is where the college falls down—in not giving him a proper sense of appreciation of what he is learning, as distinguished from what he thinks he is learning. The time at the college would be better spent in studying the principles and getting a control of these things, and the handicraft should be learned in the shop. At the end of his course or during his holidays the student could no doubt materially improve his appreciation of what college has done for him."

SECTION 4: INFORMATION OBTAINED FROM Mr. DANIEL McDOUGALL AT GLACE BAY.

Mr. McDougall is president of the Canadian Mine Workers, District No. 96, composed of men who work in and around the mines. The attitude of these men and himself, as well as the day laborers, is very favorable to evening classes, which they feel would do them and their children good. A large proportion of the men work underground; attendance at evening classes in a well lighted and well ventilated room would not do them any damage.

The miner qualifies to be a foreman by attending a night school taught by a man appointed by the Government. After being there a certain time he goes up for examination for the different positions, called Overman, Underground Mine Manager, and Manager. Some of those classes are in charge of professional teachers, who have actually been in charge of mining work, and know the practical part as well as the theoretical, and who have raised themselves to these higher positions. Personally witness would not like to take his knowledge from a man who had not the practical part of it, for he did not think such a man could teach, and he would not exemplify it as well as the man who had that practical experience. Mining would be made safer through the training of foremen by men who know the practical conditions, careful men who have gone through training both practical and theoretical.

Law Regarding Apprentices.

According to our mining laws there is a system of apprenticeship for young fellows learning mining, the length of time a fellow spends depending sometimes on the chance he gets. Of course some fellows pass for underground managers who have never worked at the coal-pits. There is no general rule or law laid down for them to follow. Boys generally go to work in the mine as drivers or door-keepers, and after a while get with somebody as helper, and then after working a certain time at the face of coal, they go before the examiners appointed from the working miners, and after examination get first a loader's pass, then a miner's pass, then after a certain time they can get a pass for what is called examiner or deputy in a mine. That is all the passes the boy gets. Then he goes to school, and after examination by the board gets a pass for the purpose of taking charge of a mine.

teachers, because they have been around ventilation and mining all their lives, and have done nothing else but that kind of business, and know the whole thing. By a practical knowledge of the mine they know exactly the condition of the roof, the nature of the coal, and everything like that, whereas probably a man that went to school might have learned it and yet would not apply the practical knowledge of it as men would that have been around it all the time. Sometimes a man could help fellows by having them go down the mine with him, because they could then see it for themselves. The knowledge of those old men will be passed on eventually, because every man acquires that knowledge according to the length of time he works. The man who passes the examination and takes charge in a mine, will after a while, along with his training and all that, get to know the whole thing just as well or better than anybody else. When it takes a man 30 long years by close observation to get more sense, he could help another fellow to save a great deal of that 30 years if he was taken in and used for that purpose. Probably that old man could be used to explain to the people; but then a man that is teaching the class would be able to explain as well as the other fellow.

Education Safeguards Mining.

I don't believe it is unjust to require a man to be educated before he gets a certificate. I believe that is the only way you can safeguard the business, for by means of the examination the men in the mines are protected. I don't think a man's practical knowledge would avail him to make him competent. I think the men who go from the Mining School know more about ventilation and the fundamentals of mining, so that accidents will not occur. This school by its training and education does a great deal towards avoiding accidents and the like. The people in charge of the mine have all had to stand their exams., as the law of this Province requires that a man cannot take charge of a mine unless he has a certain grade of exam.; thus the evening classes make mining safer for the workers. Sometimes there is carelessness, and I believe most accidents are caused by carelessness, not lack of knowledge; they risk too much. I don't think any system of technical education or any kind of knowledge, would prevent those accidents if men are careless. The man has to protect himself. After all, when you simmer it all down, the main purpose in all education is to make a man careful. As far as I know, the law in regard to inspection is carried out. I have nothing to go on but the reports, which are made regularly.

SECTION 5: INFORMATION OBTAINED FROM Mr. ALEXANDER McEACHREN AT GLACE BAY.

Mr. McEachren is Superintendent of No. 1 District, and has charge of between 2200 and 2400 men. He has occupied that post three years; has done everything in the mine; began as a trapper—a door-boy, the lowest thing in the mine, when about 8 years old; went to day school as a little fellow, and studied

by night after he began to work. In those years they did not work and study, but when the mine was idle he went to day school. He was married at 18, and went to mining night school after that when about 20 for two winters. He took a full mining Correspondence Course, and is now taking an English course to improve himself, because he felt he required it, for a person who went to work as a boy would not have much chance of getting a very extensive education, and what he got was by reading afterwards. He considers that a course in English makes a man better for anything else and also increases his area of enjoyment.

Mr. McEachren said:—"I agree with what the other Superintendents have said about the advantages of night schools; they are very good; I don't think they go far enough; they are a great improvement over 20 years ago, and if everything progresses in the future 20 years as it has for the last 20 years, I expect we will see a great big college, which to my mind is what the people need to give them the opportunity such as they have in big cities like London and in large mining centres. I can see the day coming when this will be a large place. The people of 20 years ago are not the people of to-day in this part of the country.

Social Betterment by Education.

I think there is a better appreciation of the real value of education than before. The night school for miners has been a factor in the improvements. I believe it is largely because of them that there is so little dissipation here compared with other mining camps, for as a rule a man is a better man if he is educated. Then a man situated as we are has to work by day, and as he has only the evenings to educate himself, the night class takes up his time, and if ambitious he takes an interest in his study; in that way he does not form dissipated habits, but keeps his mind occupied, which would not be the case if he was running around free, as they did in former years. Hence the night schools are a protection to the community as well as to the industry; I have always felt that.

I don't think attending night school hurts a man. Even if I felt tired when I went out I would meet one or two chaps in the class who see the ridiculous side of everything, and that would make me laugh. Then you pass opinions, and you get a comical fellow who will tell a little story, and you will get a lot of things that will help you, and it refreshes you when you go home. To my experience a man who does not tidy himself up in the evening, who makes no effort and does not go out at all, is not as fresh the next morning as if he had tidied himself up and changed his clothes and gone out and met people.

I suppose England has the oldest mining school, but I am not sure that they have any in the United States; there are none that I know of, at least there were none when I was there about eight years ago; they simply got their text-books and studied, and got along as best they could themselves.

If a boy gets a good show he would be a miner in two or three years. Witness did not know of any case where drivers are younger than 14, but the law now is that a boy must be in the 6th grade at school before he is allowed to work in a mine.

Evening Classes Helpful, but not Advertised.

Evening classes would be very good for those boys to help them along and give them more information. They are like all young fellows in the way they pass their evenings, and that would make the greatest difficulty in getting them to attend school. I have eight children, some aged 16, 17, and 18, and I certainly think it would be a great thing to have evening classes so attractive as to induce those young fellows to form the habit of going into them three or four nights a week. It is a very serious thing for young fellows growing up to get in the habit of spending their time unprofitably. I cannot say whether young fellows would enjoy their games better if they had only two or three nights for them and spent the other nights in serious work; it just depends on the make-up of the boy himself; it would suit some fellows all right, and more fellows it would not. I believe some of them would rather loaf all the time than go to school at night. I think I would enjoy plum-pudding better if I got it only once a week, and naturally I would think there would be more enjoyment to the boys to have their sports two or three nights a week rather than all the time; they would go into them with more zest, and also enjoy their night-classes. A man might learn the theoretical part of mining in school, but he would not be able to go down and handle the work. A miner would get a lot of benefit in a night school.

I don't know that I can suggest how the classes could be improved. What we want to do is show the men and boys and miners the advantage of going to those schools, thereby drawing them and making the schools more valuable, and governing them so that they would be a well established thing. The attendance at the classes has not been good at all. I think the reason is that their claims are not brought enough before the men; they ought to be more widely advertised. I don't think the deposit of the fee affects the matter, and I think the text-books are very reasonable. Probably if the books, etc., were free more would go. Some people who would go to these schools cannot afford to give that much money towards it.

Manual Training, Drawing, Domestic Science.

What is required is to give more practical training and a higher standard of education. Just now the standard is not too bad, but it must be improved upon somewhat. In connection with our Central School here we have Domestic Science for the girls and Manual Training for the boys, and it is very good. I think that would be to the advantage more especially of boys who intend to go into industrial work. We have another very good thing, that is, drawing lessons for the boys; these give them a technical idea of how to go through plans, and all that business; it is very good education. We have no Nature Study or School Garden around here; I know nothing about them. It might be all right for those who would take up that line of work, but I don't know that it would be very advantageous around here.

I think the general practice here as to spending the miners' wages is that the man himself does the buying or ordering from the stores, unless it is something that he has not time to look after, and then it is done by the women. I think it is better for the man to do it by an order from the housekeeper. He is the one that governs the internal workings of the business; the woman is the one that does the ordering for household necessities. I understand economic buying is taught by the lady in charge of Domestic Science. Practical cooking would be a very valuable part of education. I think there should be more education to teach girls how to buy well.

Work Hours and School Hours.

There are no fixed hours for people working at the coal faces. There are certain hours for the boys working during the day. They might have to work at night if the place is on double shift. A driver is only governed by the amount of coal he has to haul. When he has done hauling his coal he goes home—sometimes at 2 o'clock, sometimes 3, sometimes 4 and as late as 5 o'clock. I think it would be very hard to arrange to let boys off to attend afternoon school, because every boy has his own work, and when he leaves off it puts the work behind. A night school would interfere with some boys, but of course boys don't generally have to work all nights; they go week about—one week night and one week day. There is not a great deal of that night shift work done here, not as much as it has been. I don't think it would be any great improvement if there was compulsory education to make children go to day-school until they were 16, but there is great neglect sometimes on the part of parents in sending their children to school. I don't think any boy should be sent to work until he is 16, more particularly to the pit.

How Education Would Have Helped.

I have lived here about 35 years. I know the miners fairly well; some men who came in later I don't know. The mining schools have helped the men to higher positions because they cannot get them unless they study for them, and pass the examinations, although there are a lot of practical men to-day working in the mines that could teach some of those fellows that went to those schools some things they never knew. Those practical men that have worked in the pit all their life know it right, the whole business; they are men who have made a close study of their work all along, and know everything about it. I would not say they would be superior miners, above the average. The only thing that kept them from getting ahead is perhaps that they did not have the privilege of schooling in early days, and the stiffness of the Mining Laws prevents them from getting ahead, on account of the lack of education, like the fellows who had it. I don't know that such men would take advantage of evening classes.

There are some of them too old to bother with education, but there are some more fellows I know that just took advantage of this, and as they could not afford to close work they went to night classes and passed their exams. and got those higher positions in the mine just because they took advantage of the night schools. Some of those older men could teach some of those new things better than ordinary

positions. Night classes would improve the efficiency of the men; the present classes do not meet their needs, and should be improved.

Evening classes would be beneficial for bricklayers' apprentices to teach them drawing, English, mathematics, architectural drawing, use of steel square and reading plans. If a man wants to be a foreman he must be able to read plans; supplementary education would be desirable, but is not absolutely essential. Workmen of the present day need education, and a good mechanic requires it as much as a professional man. They need to learn to lay out plans, and should learn this while young. The most successful foremen are those who attend drawing school in the evening. One witness thought that Technical Education might tend to boys giving up bricklaying, which is hard work.

Plumbers' apprentices need Technical Education because plumbing has now become a profession. They should go to evening class to get arithmetic, and the practical part of the work that they get in the shop.

It takes a boy three or four years to become a shipwright. It would help them very much if they could read blueprints and drawings. Two nights a week of night school would not hurt them or interfere with their work.

Carriages, Wagons, etc.

Apprentices would benefit by attending evening classes if they would go; it would help their efficiency during the day, train them in good habits and give them more interest in their work. Manual Training and Drawing are useful for this trade, and men would attend free evening classes to improve in designing, etc. Special classes would be a good thing.

Night schools are needed for Railway Carriage Building. Many take correspondence course and benefit greatly, but it does not reach far enough. A witness favored more advanced work in a Central School in the Louisburg district. 25% of men in carriage building have learnt their trade outside Canada, and boys leave after 3 years or less. The Silliker Co. insists on apprentices taking Manual Training or Technical School, and gives them $2 a week more if they do. Boys should be taught here instead of importing men; a trade or technical school is needed for these occupations. Boys sustain no physical injury, but rather benefit from attending night school, as it gives them a change of thought and environment. Industrial training should begin before 14. Technical schools do not appeal to young men in car works, as they are not elementary enough; they want the three Rs and not electricity and drawing. Boys in car shops need no special training for ordinary work. It is hard to get the men to attend night school, but they would greatly benefit, and earn higher wages sooner. Lessons on frictions and breaking strain, etc., are too advanced; mechanical drawing would be good. A man can learn to drive nails in 5 days, but it takes years to become a master builder. One witness thinks the reason young fellows don't go to night school is that it is not sufficiently advertised.

Chemical Industries.

Necessity for chemical training in Nova Scotia is emphasized. Our educational system falls short in the chemical department. There is no chemical train-

ing for chemists in Canada, as the few classes that exist have no laboratories or lecture room, and very few appliances. It is essential for every technical man to know chemistry.

In the works of the Coke & Coal Co., or in the chemical laboratory of a large school, a man comes out as a mechanical or chemical engineer, with some knowledge of noxious gases, but without the necessary knowledge of chemical formulae and ability to solve mechanic equations. Apprentices in the Coke Oven Department need some theoretical as well as practical instruction. The best way is for them to be at school one week and at work the other. The superintendent of a department or a technically trained foreman would be the best instructor. College training, however thorough, is not sufficient to enable men to take a responsible position without practical experience; the college workshops do not give the same training; they teach general principles, but not practical operations.

Correspondence courses are of value for those men who do not care to go to school, but personal contact is better.

Clothing and Textiles.

Evening classes would be no good to woollen mills employees, as the work is done in sections with two-thirds female labor; overseers are trained by actual work in the mills. The School in Bradford, England furnishes training for some of our young men who wish to make woollen business their life-work. The woollen business is a complicated one; it is a question whether Canadian goods are as nicely finished as English goods; Englishmen can put better finish than Canadians can on shoddy or inferior fabric, but in the high grades they have no advantage. Canadian colors are equal to any in the world; it is a mistake to think our colors cannot hold; dyes are bought from German makers and if Canadian water is not quite right, the witness knew what to put in to make it so. Canadians are making real progress in finish and quality of color. Workmen in Canadian factories get better wages than in England, and the standard of living here is higher; hence an English manufacturer can turn out a quality of goods for 30% less money that in competition is practically as good as Canadian. Not only is the cost of manufacturing lower in Britain, but they can specialize more; e.g., in the west of England witness found one mill running on riding breeches cloth alone, whereas in Canada we could make enough of this in a week to last Canadians a year.

Provision is needed for training tailors. At present it takes about seven years to learn, but on the half-time system a boy could be proficient in two years. Practical knowledge of the trade and allied subjects is needed. There is no regular apprentice system, but boys usually spend about 5 years learning. The proper system to help apprentices is the Technical School Garment Class, in which students make marvellous progress. There should be a school in Halifax or elsewhere for the idle winter months from January to March—a sort of post-graduate course for journeymen tailors to exchange ideas. If there were facilities at Yarmouth for night schools many more would go into tailoring.

Boys in the cotton duck factory work around machines, which leads to no trade, therefore a night school to teach them a trade would be a good thing, though

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CHAPTER V: SUMMARY OF OTHER TESTIMONY AS TO INDUSTRIAL WORKERS.

As has been already stated there was inevitably a good deal of similarity, approaching repetition, of much of the testimony of workers in the same class of industries at the different places visited. An attempt is here made to assemble out of the mass a representative summary of such testimony and to arrange it, in the main, under a subheading for the industry or occupation to which it relates.

SECTION 1: AS TO CONDITIONS GENERALLY

The great industrial development of Nova Scotia in coal-mining and steel making, besides a variety of other manufactures, is tending to discount agriculture, and a strong effort is needed on the part of the school to make instruction in agriculture and allied subjects interesting, intelligible and helpful to young people.

The steadiness and perseverance of the Nova Scotia people are such that the industries of the province, which are greatly increasing in number, are well manned, and there is really no lack of skilled workers, but as insistent calls from the West continue for artisans as well as laborers, the shortage of workers will be felt in the Maritime provinces. As industrial developments constantly call for finer manipulations, the schools should be diligently preparing young people, or these constant demands will leave the Province short of skilled workers. Textile works, hat making, furniture and other industries are doing a profitable business in the Province, some of them in most unlooked for places, which, geographically, have no attractions in the way of shipping facilities, etc., while the conditions of life are so comparatively easy and pleasant in the Province that these industries attract workers. The fact that these artisans possess skill under present conditions is the best argument for further development of technical education, beginning with the kindergarten and running all through the school system.

Labor conditions in Nova Scotia are exceptionally good as regards quality of workers. The steadiness, carefulness and sobriety of mine workers has had a marked effect on the safety in mines, which in Nova Scotia stand highest in the world's record in this regard, having a smaller number of accidents per thousand tons mined than anywhere.

The safety of mining operations is improved by increasing the intelligence of the workers. "The Nova Scotia miner is 20 or 30 years ahead of any other class in opportunities of education along his particular line." He has had the benefit of systematic instruction as well as experience.

Education and Schools.

Education has been a large factor in keeping up this high standard, but it is still needed, and more so as local conditions require longer hours. Night schools are not strong enough to cope with counter attractions, such as moving pictures. Poor attendance at evening school is due to irregular attendance in school days, which results in boys getting left behind. If the boys felt that the public school fitted them for life, they would stay longer, and teachers must be competent to attract young men, who feel they ought to be earning. Evening schools are what these boys need, and day school buildings might just as well be used for them.

The people of Glace Bay would like to see further provision for Technical Education and would approve of evening classes carried further than at present in courses and numbers. Practically the only industries are coal and steel, so that anything that helps these would help the whole community.

The general feeling is in favour of cultural plus technical education for young people; people want to see their children compete with other countries. "We have the facilities for making a great country, and want our country to make it so. People are willing to pay for better technical education if they are shown how to get it."

Typical Local Industries.

Mr. W. Fred Donkin, Clerk and Treasurer of Amherst, gave an interesting sketch of the origin and growth of the industries in that town. He said the chief cause of confidence in those industries was that the men at their head had not only technical, but also the practical knowledge; they had all started in a small way and grown up steadily, winning the confidence of people who had money to invest. He cited the Amherst Boot & Shoe Co., which had not more than $3,000 or $4,000 capital to begin with, the men at its head having started from the bench and worked up. The same was true of Christie Bros. & Co., Rhodes, Curry & Co., the Robb Engineering Co. He could remember when Mr. Robb's father had a little tin shop, then he built a small foundry, and worked his way up to a successful business. Those men all gained industrial efficiency by practical work right from the cellar to the attic of their business. Witness believed that in the present state of the business life of the country technical education in any line was of great benefit, for if a young fellow gets a thorough grounding on a certain line of business in college it does not take him as long to arrive at perfection as it would if he had to learn it all from practical experience.

Building Construction.

A simple course in house construction would be a benefit. Men at present cannot finish a job without supervision; they take no pains to educate themselves, and explanations have to be made over and over again. A course of manual training while they were boys would be of assistance. Nine years is considered the time it takes to become a competent builder, and two years could be taken off this by Technical Education along with practical work, and enable men to take better

it would not help them particularly in the mill, except in a general way. Evening classes for weavers and spinners would help them to be promoted. It takes a year to learn, and some girls become so proficient that they earn a great deal, but training outside would not help them. An overseer says he would go to night school himself after 15 years' experience.

Many men in Stanfield's Underwear Factory at Truro take Correspondence Courses, but a school there would be better; men who rise to be foremen have had such training.

Manual Training at school would help boys to learn to use their hands and to become more efficient.

Some journeymen tailors attended the Technical College at Halifax and got much benefit. A class for power machines under a competent teacher would be a great help. Girls cannot sew either by hand or machine; this should be taught at school.

Clayton's Cotton Factory in Halifax pays the fees of boys and girls going to Commercial College. The firm could not arrange to spare machinery for day classes.

Electrical Industries.

What is most needed in this industry is a reliable man, and an educated man is generally more efficient. The habit of observing closely is all-important, and makes a man more reliable, therefore anything to give him that training would be valuable. Manual Training makes boys more reliable.

Metal Trades.

Most employers in the iron trade favor evening classes, opinion being divided as to whether these should be made compulsory, and also on the question of shortening apprenticeship for attendance. The subjects suggested are drawing, reading plans, arithmetic, writing, knowledge of tools and chemistry.

Men in blast furnaces should learn about combustion of fuels, and those in rolling mills need to know the qualities of metals and fuels, and the care of machinery—in fact, anything which enables them to make suggestions. Mechanics and metallurgy should also be taught.

Men would profit by the advice of experienced men on what books to read, and employers favor reading courses for men too old or otherwise unsuited for night school.

The co-operation of employers is favored, many already making attendance at evening classes a condition of promotion.

All are agreed that actual work can only be learnt in the shop, and the practical work given at college is not the same thing, though it helps young men to rise more quickly.

Some employers favor the half-time system, which could be managed by duplicating the numbers of apprentices. One employer considers that 6 months alternate school and shop would answer better. Manufacturers would put money

in their own pockets by co-operation with Technical Schools and Universities; and they should co-operate to see that their apprentices get promotion according to attendance.

The present evening classes are good, but need to be made more attractive, with more equipment. Courses should be arranged by practical, experienced men.

A public laboratory is needed at Sydney Mines, and would be appreciated by those who used it, though many would not avail themselves of it. Analytical ability is not much use to workmen, but a general knowledge of principles would be useful to them. They get this in the Technical School to a certain extent, but only practical experience from the bottom up can teach it.

A boy should start in the steel business at 14, certainly not later than 16. This does not give him time for a High School course, and Technical Schools are not always practical. A boy kept at school till 20 or 25 is not fit to work. Attendance at night school would not injure a boy's health, and those who get on well will probably go to Halifax or McGill, while those who stay will get promoted sooner.

Night school would help machinists to get into the finer parts of their business, and show them how to do the work quicker.

Manual Training at school does not help a boy to become a pattern maker, as he forgets it before he starts work; a night school would help. Manual Training helps a boy with drawing and practical mathematics, provided he goes right on with such work on leaving school, otherwise he forgets it all.

One man with 33 years' experience said he would go to night school. Men need explanation of fineness and hardness of metals, and a knowledge of mechanical drawing. These help to raise salary, increase production, and thus benefit employers as well as men.

The Secretary of a Machine Company says that good training for apprentices would help the business; foremen need Technical Education.

Industrial Training would help to develop the New Glasgow locality, and the best means is an apprentice system combined with night school. Technical Education makes occupations safer, more economical and more productive.

One witness favors supplementary school, but not evening class. Boys should go to day school till 14, then to day Technical School till 16. He would be glad to see boys get pattern making at school with Manual Training. Tuition and books should be free.

Iron work helpers in ship-building take 3 or 4 years to learn, and could learn quicker with night school. Compulsory night school would be the best thing for boys of 14 to 16 who have gone to work. One employer in this business says he would make it a condition for his boys to go to evening school.

Tinsmiths have an apprentice system. One witness advocates evening school for apprentices, who would be able to earn 50% more if they attended for lessons in cornice work and tinsmithing. Some boys who do not become good cornice boys in four years under a foreman would do well if they had some Technical Education in addition to the mechanical knowledge they pick up. Workers would go to evening classes if they could thereby get help in their business.

For engine fitters the reading of technical papers not too technical is valuable. Only time will teach a man to do properly the things he has to learn by

experience, but he can learn in school how to do things more quickly. Evening classes should be made interesting and down to the men's level. It is better to make them interesting than compulsory, and hours of labor should be shortened to admit of attendance.

It is not really necessary to have technical education to be a good moulder. No technical skill is required in enamelling, but any foundryman would do well to know drafting and chemistry, the latter being indispensable in the enamelling business. Careful workmen are needed, and anything that tends to make a boy careful, thoughtful and observant is an advantage.

Printing.

Evening classes would help printers if they were as good as the Correspondence Course of the Typographical Union, which is the best that can be had. Workmen do not understand the underlying principles of their work, and they need this to give them confidence and independence.

Wood-Working.

The education of artisans, more particularly carpenters, is not sufficiently provided for; they lack knowledge of plans and estimates, and much might be done in regard to mechanical drawing. A man can do practical carpenter work without a night or correspondence school, but these would help him to learn quicker.

Night school is a good thing for boys who have no other means of getting an education; a night class in reading plans, etc., would be useful, and preferable to the half-time system, but best of all is regular apprenticeship with evening classes.

Machinery has affected apprentices and it is now more difficult to become a good journeyman. Men who attend technical school make better carpenters than those who do not.

Manual Training in school with a turning lathe would be a splendid training for carpenters. One witness who is turning out barrel stock said he wished he had had Manual Training at school, and would see that his son gets it now. Evening school is a good thing, and a man who has learned drawing gets a better chance of promotion.

Other Trades and Industries.

A hardware merchant says boys cannot spell, write or figure, and are not taught sterling and other foreign weights and measures which are required in office work. Courses in commerce and salemanship would be useful, including writing, book-keeping and correspondence.

Manual Training is useful as imparting a knowledge of tools.

Lads who attend evening classes would be more capable workers. Manual Training is a great advantage in all branches of industry.

Night schools would help locomotive firemen, if the teacher were a successful locomotive engineer; failing that, a man who understood about burning of coal.

A class meeting once a month at headquarters to talk things over would be helpful.

One locomotive engineer took a Correspondence Course and found it of use in helping him in breakdowns, saving fuel and repairs, etc., but it was Correspondence Course plus experience that taught him.

A night school on air-brakes with a demonstration car has proved a great success. Experience coupled with Technical Education is considered the best training.

A mechanical draftsman says that college training is not much use in drawing, because they learn to make an outline of one complicated machine, and much elementary drawing; whereas in practical evening classes special attention is given to practical features of drawing; a man makes drawings of a machine part by part and puts it together as a drawing. The main value is in disintegrating the machine and putting it together from a drawing, instead of sketching parts.

Technical lectures in connection with road-making would be very beneficial.

A civil engineer says that one of the chief difficulties in introducing new kinds of cement is the ultra-conservative attitude of those men who go by literature and refuse to be convinced by facts—i.e. who lack proper training in observation and investigation—powers which should be cultivated by every engineer. Men in charge of public works need training.

There is great need for a research laboratory and testing laboratories, especially for the utilization of waste products.

Banking.

A bank manager says that business college training is not very good; it trains boys in business forms, but not in concrete banking, though young men might learn quicker if they had that training.

Retailing (Dry Goods).

Clerks are deficient in writing, spelling and mental arithmetic. A business course for clerks after Grade 8 might be a good thing. Those who take Correspondence Courses become more efficient, and a night school in the same subjects—sign writing, window dressing, etc.—would be valuable. A Dry Goods Clerks' Association where they could discuss matters would be of mutual benefit. Correspondence Courses do not teach them to distinguish different kinds of goods, but give them general principles. The technical college should have a Dry Goods course.

Transportation.

If telegraphy were taught at commercial schools, it would be easier for operators to learn, and save time. The great trouble is want of education in all lines, and night school would be good to remedy defects due to leaving school too early.

TRADES AND LABOR GENERALLY.

The testimony submitted shows that where labor is skilled and effective there is a great tendency to do it by machinery, but in a sense it takes a more skilful man to operate an automatic machine. Ordinarily a skilled workman would think he should get much more wages on account of his skill, but just in their circumstances it was the other way; the automatic machine would turn out a good deal more than the hand turner could.

Whenever it is possible to cheapen the production of the article, whether by hand or machinery, it is the natural law that larger markets are opened with greater consumption and other opportunities for labor in another direction.

Amherst woollen goods hold the market against English and others, while our men live better and earn more than the English. Fifteen years ago engine men earned 15c to 20c; now 30c and 35c per hour, and they are worth it; the product closely corresponds. There are more applicants for work than positions, but it is difficult to secure skilled men; ordinary labor is more plentiful.

Objection is made to women entering unskilled trades, owing to physical and moral effects; wages are very poor, not more than $3 a week. In Halifax there are between 2,000 and 2,500 women workers in industries between the ages of 16 and 25; about 1,000 begin in the needlework industry, 9% in professions. These latter get opportunity for training.

The results of the trade school for garment makers were very satisfactory. The need is apparent and will be met. Trade schools could be established in large communities where many wish to enter the same trade, and could turn out skilled journeymen in less time than evening classes.

Women who can afford to go to High School and college need home-making training, also to learn industrial and scientific principles governing production. There should be elective courses parallel with others. Twenty-five per cent of all women in industries entering manufacturing life, such as dressmaking, millinery, etc., are practically wholly unskilled. It is possible to try the same experiment for women as for industry; viz., by the Government paying half the cost of teachers, and the municipality paying other half and providing building. Unskilled labor is greatly increased by machinery. It is a question whether factory girls can ever be trained to advantage; night schools are deprecated on account of tiredness; girls should not work all day in a factory. Legislation in cotton factories is not enforced; women are working 12 hours daily. Machine operators are scarce in the Province because they earn more outside.

There is a great scarcity of labor in New Glasgow; skilled labor is wanted; there is no overplus in the Province. There is a special scarcity in journeymen tailors, and that trade depends largely on foreign labor. The Chairman of the Nova Scotia Public Utilities Commission says as far as he knows the factories can get enough skilled reliable help for the different places.

Of small tools 40% are of domestic manufacture and 60% imported. The sparse population would not admit of small tools being made here; the Germans are capturing the market.

In Sydney it was stated that the whole enterprise hinges upon the skill and ability of the Superintendents of the different departments, as operations are highly technical. The automatic machinery employed dispenses to some extent with skilled labor; the tendency of all machinery is to dispense with common heavy manual labor. Owing to the small size of Sydney it will always be a matter of difficulty to get emergency crews; in large centres such crews are always handled without any difficulty. Employees here are a superior class of men all through.

Experience shows that a ten-hour day is not conducive to higher technical knowledge on the part of the workers. The loss of vitality tells, and the man becomes duller with a ten-hour day.

Suggestions were made that Canadians should study the methods of other countries by sending men away to observe; also to get men interested in their own industry by profit-sharing schemes. "No protection is equal to this method; protection of intelligent ability is better than anything else."

Trades Unions are at all times willing to assist technical education. The Trades Unions of Halifax have helped from the first. Labor leaders might not approve, but the technical school suggested inculcating the idea of efficient work and increased product.

SECTION 2: TESTIMONY AS TO PERSONAL TRAINING.

The following are very brief summaries of evidence given to the Commission:

Mr. Hale, coal miner, started in a pit in Forest of Dean, attended Night School in 1890, chiefly for mining subjects; got considerable help. Gained overman's certificate in 1891, later got an underground manager's certificate.

Mr. Hickson, Mine Superintendent, with 400 men under him, took course from science master in Dundee; after that went to States and passed examination there. Could not have been ready for present job without the Night School study.

Mr. Fraser, for three years General Foreman of the Nova Scotia Steel & Coal Company, had done pattern making before that for 15 years. Did not serve apprentice. Just picked up what he learned. Never went to Night School.

Mr. McMillan, Superintendent Steel Department, Dominion Iron and Steel Company, attended Public School, got private instruction from his father, entered Princeton University at 16 and took the ordinary course. From there went direct to Steel Mill, commenced at lowest position at 90 cents per day and worked up.

Mr. Rice, Manager Rolling Mills, Dominion Iron & Steel Company, graduated from Technical School in Worcester, Mass., then started in Rolling Mill there and worked up. In the High School there is a course that leads to Technical School.

Mr. Cameron Mackie, Chief Chemist, Dominion Iron & Steel Company, went through Public School and Night School in Mass.; took course in Dalhousie University; taught school for one year; came here in 1905 and started at lowest Chemist's position.

Mr. Nairn, Locomotive Engineer, learned as fireman and came up that way. Had about a year's training as shop engineer; during learning time only got instructions from foreman and journeymen; never attended Night School.

Mr. Johnson, Locomotive Engineer, was promoted from fireman. Acquired knowledge of blue prints from experience and through books. Had taken Correspondence Course at cost of $75 or $80. Got knowledge of use of steam and care of machinery.

Mr. Hastings, trained machinist, learned his trade in Edinburgh, where he served 5 years under apprentice system, then graduated from George Watson Engineering College after two years, having attended Night School during apprenticeship, four nights weekly.

Mr. William, Patternmaker, served five years at his trade in Scotland, beginning at 18. Was taught to read drawings, which is quite important. Would not have learned his business without a definite apprenticeship.

Mr. Whittaker, Ring Spinner, Overseer, learned by going to school one-half day and mill one-half day in Oldham, England, from age 9 to 13; after 13 he went to mill all day. Went to Night School after that for two or three years, 3 nights weekly. Studied reading, writing and arithmetic in half-time school.

Mr. Burton Johnson, who has been full locomotive engineer ten or twelve years, did some study and took two Correspondence Courses; did not learn to read blue prints until just before he was promoted from fireman. Found Correspondence Courses a benefit; picked up a good deal of knowledge in the use of steam and care of machinery, so that, as a result of course and experience together, his engine costs less for repairs and fuel than if he had had no training. He conducted a Night School at the round house, with a little air-brake plant, teaching mathematics of air-brakes and steamboilers, etc. Course lasted about 3 months and was popular, being attended by shopmen in mechanical department, and mechanics, also foremen. The teaching helped himself to understand these things better. The men who took that course are more likely to be promoted. Good-will is promoted by such classes so that it is a good element in shop life and work. He thinks there is nothing like experience coupled with good Technical Education to help a man to do well.

SECTION 3; SUMMARY OF TESTIMONY AS TO TRAINING OF APPRENTICES.

Apprentices should get good common school education until 14, then attend trade school until 16, to be taught in day time by paid teachers. Apprentices must have more than mere hand work if they expect to rise. Apprentices now get training in haphazard way; they are promoted according to efficiency.

It would be best if apprentices could attend school one week and shop another, apprentices being gathered on the job and getting some little theory of their work from the superintendent of the department or from the foreman if proficient. Manufacturers should aid apprentices to secure technical training; then they would be of benefit to employers.

One witness says he taught himself what he was not allowed to learn as apprentice; several say they taught themselves by books and experience. Ap-

prentices need practical men to teach them, and actual shop work is necessary. Apprentices need trade magazines to read up. One witness thinks it is easier than formerly to learn business in a shop. Boys are very unsettled; do not care for education or regular employment; easier for boys to earn money than formerly.

The part-time system would be favored in Nova Scotia for many small and poor communities, if it had the hearty co-operation of manufacturers.

One firm sent their boys and girls to the Commercial College and paid fees, gave them afternoons off and paid them just the same; but the plan failed because they left the firm's employ and got better positions; therefore they now train their own employees.

Young people in factories should be allowed to go to school half days, and by having relays of workers this way would entail no loss to manufactures.

The half-time system would shorten apprenticeship and complicate matters with journeymen, but if made compulsory would be a good thing all round.

One master prefers the half-time system and says a boy of 14 would be as competent in 2 years as now in 5 years. Another employer thinks this system not feasible. One witness prefers more than week or day about and suggests probably six months at one and the same at the other. He thinks shops should be run on the half-time plan, and believes this might be done by duplicating the number of apprentices.

Apprentices in bricklaying serve 4 years; carriage building 4 years; harness making 3 years; machinists' trade 4 years; in turning shop in woodworking, 2 or 3 years; in car shops a boy can learn in two years, and when worth a man's pay, gets it.

Journeymen help the boys, who may stay three or four years under one or more managers. Twenty years ago apprentices in machine shops had to do certain blacksmith work, taking some seven years; this is now cut down to five years and confined to lathe or vice work, and the boy does not get a chance for all round training. Young men should serve four or five years.

In ready-made clothing boys and girls will not serve apprenticeship.

The whole system of apprenticeship has changed during the last 10 or 20 years, to the detriment of the mechanic. Apprentices are not required to put themselves under indenture; it seems contrary to the genius of Canadian people to indenture. Apprentices learn only a small part of trade as a rule, owing to machinery, hence fail to become mechanics. Under old apprenticeship system men were more skilled.

There is really no apprenticeship now, but more and more specialization every year, so that a man does not master the details of an industry to-day as he used to, and the boy does not get a chance. The apprentice system is practically obsolete as far as manufacturing operations are concerned, and no factory or concern can keep a boy at apprentice wages after he becomes useful.

The Dominion Iron and Steel Company does not exact that apprentices put themselves under indenture, and although there is a form prepared for that purpose, indenture is not made unless a father brings his boy and says he would like to have him indentured. Most young fellows stay the full time and become journeymen

Canadian boys leave after three years; most do not stay as long as that. Apprentices often after 2nd year go driving delivery wagons. 80% of boys leave before finishing apprentice period. The chief difficulty is in boys changing, not being bound to stay with one firm; boys are very unsettled, do not care for education or regular employment; some leave for United States.

The apprenticeship system with a night school in connection is favored. Two firms in New Glasgow and one at Amherst require their apprentices to attend night school; and master plumbers say apprentices should go.

Some witnesses thought the proper system to help apprentices was a Technical School for three nights weekly, adding that the education a young man gets there is phenomenal; that it would be a good thing when engaging apprentices to make it a condition that they attend night school; that it would be a great help if superintendents from shops took classes in night school for apprentices; that attendance at night school would help apprentices in cornice working and tinsmithing departments.

One witness would not shorten the apprenticeship of a boy who attended night school; another thought apprentices attending night schools should get more pay, or that the term of service should be reduced. It does not raise wages in any way to attend night school.

One witness said that evening class attendance hurt a boy's health, but it was better than spending his evenings on street corners. Another said that working hours of apprentices should be shortened in order to allow them to attend night school.

Most witnesses favor boys attending night schools, one stating that in winter when business is slack, boys could go to a regular day continuation class. Only one witness was opposed to night classes for apprentices.

In some shops the foremen instruct apprentices; but compulsory night school is thought desirable in addition. If apprentices could go to night school they could be taken on at 14; otherwise not till 18.

One witness offered $100 for an apprentice to moulder but could not get one. One witness advocates revival of the apprentice system, and says he does not think boys would object. The old system of indenture was favored because in an apprentice system there must be a mutual bond between master and boy.

There is a system of apprenticeship in all departments of the Robb Engine Co., Amherst, and 90% of their men have grown up with them from apprentices. In all departments the boys at Robb's get 50% of their help from foremen and others. Skilled workmen are willing to help young fellows. Continuation class should be compulsory for 90 days a year, for entire artisan population until 18 years of age.

In the Canada Car and Foundry Co.'s works there is no system for teaching apprentices. Technical education would help apprentices to earn 50% more. The discipline of knowing what cost means is not applied in college; apprentices and workmen get that discipline because they are called to account if things are incorrectly done.

Twenty-five per cent. of men in the car works have learned outside Canada. Men in the cutting room in Ramsay Shoe Co. serve time as apprentices. Apprenticeship is favored for a certain number of years, with training right from the bottom. A better trained man or woman is the cheapest employee even at higher wages, doing more and better work. One witness believes in regular apprenticeship of four years, and the boy being compelled to remain with one employer.

The Printers' Union looks after its own apprentices and has laws as to age, etc., for protection of employers and apprentices.

In the ready-made clothing trade boys and girls will not serve apprenticeship. After being under a competent man in a technical school, such as at Halifax, a pupil could be placed as custom cutter with earning capacity from $600 to $1,000 a year.

SECTION 4: AS TO TRAINING OF LOCOMOTIVE ENGINEERS.

Mr. Burton Johnson, of Truro, submitted the following statement: I consulted the most intelligent Engineers and Firemen, also Conductors and Brakemen, as to suggestions for betterment of the conditions of locomotive engineers, and find that they favor the text-book system of education as conducted by the International Correspondence Schools with the addition of a short course in Arithmetic. The only objection to this system is the cost, which is undoubtedly excessive, especially when the other fellow who invests his money otherwise and does not care to be educated gets the same encouragement from our officials as those who study.

Our time card mileage is in decimal fractions. Train orders under certain conditions require an addition to time recorded in time schedule. This requires a fair knowledge of Arithmetic. Stationary engineers are required to pass a successful examination on steam boilers, etc. Our senior men do not realize the value of a technical education and should not be consulted as to its necessity.

Half a century was required by expert mechanics to attain the present perfection of the locomotive and its attachments; it is therefore unreasonable to suppose that any man during the average railroad life, could make himself familiar with the construction and working of these appliances, by experience alone.

The text-books referred to contain complete explanations and cuts of the various up-to-date appliances, and are used to advantage on several roads in the United States—the Michigan Central being one if I am not mistaken. Arrangements are made with the Correspondence Schools for education and also examination of the men.

This form of education, if handled by local men, could be self-sustaining. Text-books could be printed in Canada and sold to cover cost of production and distribution.

Travelling Engineers who would act as instructors, could hold meetings at different terminals at regular intervals. This would be the only sure method of reaching all classes in the service. We have an air-brake car accompanied by an excellent instructor on this system. This car has far too much mileage to cover.

At our school at Truro we have the latest air appliances, in working order; also a valve model and cuts of various articles. We meet two evenings a week

and study the locomotive and mathematics on alternate evenings. The attendance is very uncertain on account of the junior class of men, who realize the importance of this movement, being engaged in extra work.

Conductors and Brakemen should be familiar with subjects of train-haulage, air-brake, car-heat, car light, train orders and rules, mathematics, etc. Engineers and firemen should be instructed on locomotive boilers, break-downs, care and management of the locomotive, and the use and workings of the various up-to-date appliances, in addition to the studies mentioned for Conductor and Brakemen. Shopmen in line for promotion should be given instructions on combustion, train rules, signals, etc. Suitable instructions should be given to Fitters, Helpers, Boilermakers, Blacksmiths, Trackmen, etc. The knowledge of cost of various articles in constant use on railroads would also be a help to the railroad companies, and prevent waste of material to a certain extent.

A system of education as above outlined would benefit the railway companies as well as the men. A Fireman who makes a study of combustion and puts his knowledge into practice can save his day's pay in coal. An Engineer who studies properties of steam and kinetic energy can also make a great saving. Shopmen, Conductors, Brakemen, etc., by keeping up-to-date would also add to the economical working of a railway.

Mr. Johnson encloses a letter from Mr. R. Wilson, Mechanical Foreman, I.R.C., Halifax, in which he says:—

"That technical education is a paying investment to any young man in whatever calling he may choose, there should be no question.

"To the individual who aspires to become a Locomotive Engineer and become master of his calling, training along this line is an absolute necessity. Its benefits are evidenced since the inauguration of our school at Truro, and its results are plain to be seen. There have been fewer engine failures and the men have learned to place proper value on the machine in their charge and on the appliances with which it is equipped."

Mr. Hallisey, District Railway Superintendent, has a demonstration car fitted up just like an engine, and tries to see that each man can get lessons from it when it goes to his section. They are all supposed to take lessons from it; that is made a condition of promotion. A notice is posted that if a certain class of men do not get instructions from that car they will not be allowed to be brakesmen on a train where an air-brake or steam heat is used. The men take advantage of that car very well.

SECTION 5: OUTLINE OF TWO APPRENTICESHIP SYSTEMS.

APPRENTICE SYSTEM OF THE ROBB ENGINEERING COMPANY, AMHERST, N. S.

Mr. Daniel W. Robb, managing director, gave an interesting account of the evolution of their apprenticeship system, which is in vogue in all departments and has developed to a greater extent than in almost any shop, even in the United States or England, with which Mr. Robb is familiar.

The business began in 1865 with a dozen employees, manufacturing stoves and repairing machinery for mines and mills. There are now from 250 to 375 employees, almost 90% of whom have grown up with the firm as apprentices.

In 1891, the manufacture of high-grade stationary engines especially for electric work was begun, and considerable special machinery was introduced.

An Expert Organizer Employed.

In order to get that department on the best system, said Mr. Robb, we employed the best man we could find in the State of New York, Mr. Armstrong, who himself had been an apprentice and worked up under Prof. Sweet, formerly instructor at Cornell, and who was then president of our Engine Co. at Syracuse. He was not only a practical man but a good designer and draftsman and mathematician, and to some extent also a good instructor. When he came we had a foundry and machine shop and we could have gone on and made those engines at once without any change, but he advised us to make a special department of it, even though we only had a very small space, and to make our system entirely different from the ordinary system of jobbing machine work. He said: "There are two ways you can do this: either by getting expert mechanics from the States who are accustomed to make these alone, or you can get boys here; you have some already as apprentices, and I will undertake to teach a certain number of them and train each boy to do some one thing at first." So we decided to adopt that method, and we commenced with about a dozen boys and each was taught some particular thing, for instance scraping surface plates. This requires great patience, and the boy had to be very perfect at it, but when he once learned it he could do that as well as a man in Brown & Sharp's works in Providence, R. I., where they make a specialty of it. Another boy would learn to do a line of lathe work. After awhile we had a dozen special mechanics, and from that we developed general mechanics; that is, boys who were adapted to certain lines would be changed about from one thing to another.

Evolution of System.

In connection with that we developed our apprentice system by a process of evolution. We found what would suit boys, and made different kinds of agreements with the boys. One time we held a premium to the end of the apprenticeship, but as a result of long experience we abandoned that; we simply have a few rules which the boys understand. Their conduct and all that are regulated entirely by the foreman, and the wages are regulated by the experience and skill. We do not bind the boys down in any way; if he gets tired of us or we get tired of him he goes.

We found that while we educated a certain number of boys who go to the States or elsewhere, still we hold a certain proportion of them, and altogether it is a good commercial proposition for us.

I should say 10% of our men have been with us 12 or 15 years, some of them more than that; then perhaps 25 have been with us from five to seven years. Our apprentices stay with us five or seven years, which is longer than those on regular

apprenticeship. Sometimes they go away and come back; sometimes they go on a harvest excursion to the West. All the time we must be losing an average of 10% of them right along.

While at the end of four years a boy is called a journeyman, our apprenticeship really lasts as long as the boy or man stays with us, and as a matter of fact the rates of wages increase right up to eight years.

This system is very similar to the premium systems used in the States, but we have developed it a little farther. The Halsey system states the time required for each operation, and records are kept on a card. We used that system for some time, but found it was not entirely right for our business, because it was so very difficult to set all the rates exactly even; some men or boys were liable to have very soft jobs and others very hard jobs, and they were not as well satisfied with the hard jobs as with the soft ones. Besides that, we thought it was not as fair as it might be to those who were not getting the best jobs.

Quarterly System Adopted.

As a result of that, we adopted this quarterly system, by which we keep a record of what each one does for the three months, the time it takes, and the time that we allow. If a man saves 100 hours in the three months we multiply that 100 by his regular rate of wages and divide it by the number of hours the shop has worked. That would show that he is entitled to one or two cents per hour, or whatever it may be, for premium to be given to him for the next three months. According to the rule, if he did not show that the following three months, he would drop back to his standard rate of wages; but as a matter of fact we simply use this as a guide. We advance them as they deserve, and if a man keeps up his average fairly well we very seldom bring it back again. As a matter of fact, this is a good method of rating a man. Instead of calling in a foreman and asking what a man is worth, these cards show what his production is and what he has been doing, and the even labor of the man. We don't set any rate, for the foreman is supposed to put on the time which should be taken, but it gives us the average man's time for three months.

Giving Men Incentive to Improvement.

We build the rate on our labor that way, and the whole system is founded on the fact that it is a sort of co-operative system. We feel that human nature is the same all over; a man must have some object in view. If he sees he can gain something by using his brains and improving his work and methods, both the shop and himself will get the benefit of it.

The most valuable feature in connection with the whole system is that we are compelled to work out those operations very carefully. We cannot depend entirely on one man doing a job one way and another man doing it another, but we have an expert in that line, who has gone through the shop himself, write out all those things in detail. It is not easy getting the exact operations of each particular piece, and for the same kind of piece on each kind of engine, but this man goes over

these. Writing it all out just for one portion would take a sheet half the size of a letter, showing that the workman has to use certain chucks and templets, and describing how it has to be put in the lathe, and so on.

Shop Methods Constantly Improving.

The greatest benefit in the shop is that we are compelled to do that, and we are constantly improving on our methods of doing the work; and as workmen themselves find out better methods we get the benefit of them, because they suggest them to the foreman, who then changes his operation sheet; and altogether we are getting better production out of the high-priced men than we were out of the low-priced men. Of course it is a great advantage to the shop, because plant and equipment cost so much, interest on investment is so much, and the higher production you can get out of the same outfit and the same plant, the better it is for your works. One of the most important features of our system is that it enables us to get the exact cost of every piece of work, and hence the complete cost of every engine or lot of engines and all other contract work; so it fills a two-fold purpose.

Our proportion of apprentices is about 25% up to the fourth year, and what we call helpers. Our foremen play quite an important part in teaching apprentices. Our foremen have their regular hours, but we do not require them to use a clock to check their time.

Boys Instructed by Foremen and Journeymen.

Apprentices get special instructions during those four years from the assistant foremen. The foremen themselves, of course, are pretty expert in their lines, and if they put a new boy on to a certain line of work they give him a certain amount of instruction, and follow him along until he can do it to the best advantage. We tried special men, called instructors, for that sort of thing, but found we got the results in most cases by putting a boy as helper with an experienced hand on certain machines. The man requires a helper, anyway, and the boy gets some experience in that way as well as by his own observation, and in a little while we are able to put him on that same machine or a similar one. The man doesn't make any special effort to train the boy; he is not specially instructed to do that, still the boy of course is helping him. The only positive instruction is when we put a boy on a new job; then the foreman or assistant superintendent will make a business of showing him all he can on that particular job. I do not think a mechanic on the check-time system would take his time to teach an apprentice, because he is there to make as much money as he can, and has no special interest in the boy except as they become friendly. With our class of men they are always on good terms, and of course our object is to get these boys on as fast as we can, for we regard it as a way of saving or making money, and we study out ways to do so, and we are trying to improve methods all the time. In some cases it is an advantage for the workmen to help the apprentice along, because he gets through his job quicker as he becomes more skilled, and he doesn't have to stop to

tell him what to do. The boys keep in view the possibility of their going to the States, etc., and that means getting qualified as quickly as they can, and they go there and get very high wages.

Training of Foremen.

Our head men are trained for the important positions exactly the same as the other apprentices. If they show special aptitude for handling labor, and special intelligence in that way, they become foremen by practical experience in the work. We have always this kind of capable men in view. Undoubtedly our men who have reached the foremen's places would be helped by study in the evenings, but I do not think anything could take the place of practical shop experience for a foreman's ability.

Quite frequently have young men who have taken a course in colleges, such as McGill, come to us for a few summer months and we generally try to take them, although it is not of very much advantage to us. Of course for commercial reasons we prefer to take boys as regular apprentices, without any break, but as a matter of fact the boys who are wise enough to mix in practical work with college study are, as a rule, very practical boys, and by doing that, show that they have ambition. We do not care to take boys until they are 17 or 18, and they are generally through school. We have more applications for apprentices than we know what to do with; they come from all over the Maritime Provinces, and a few from other parts. We encourage them to get all the schooling they can before coming. A good many of our apprentices go to the Technical School; in fact I think at present it gets the largest number from our place.

Combination of Theory and Practice Best.

We find that boys learn more practically after they are in work—of course with the combination of the theoretical. A boy may supply to a certain extent the deficiency that he would suffer for want of technical or college education if he has the other end of it; or he may have the technical education and not the practical, and the other end can be supplied. Our experience is that the boys who take a college course, even in the best school, such as Cornell University or the Massachusetts Institute of Technology, are handicapped to some extent compared with our practical boys until they get right down to their level. At the same time a practical education is of great advantage to them when they get the other. The work in the technical school while very satisfactory, could with advantage be advanced still further. In Amherst a large proportion of the young people between 15 and 18 would find great advantage in attending evening school. I do not think compulsory evening classes would be wise or practicable. My idea is that both local and Dominion Governments ought to provide these schools but they will only be taken advantage of by a certain proportion of the industrial population, and they should not be made compulsory because there will be no use in compelling people to go there who would not do any good. I think more opportunity is needed for young fellows in evening classes than now exist.

Fine Quality of Workers.

The fault of our people here is that they either have not sufficient courage or imagination for the things that they can do. Mr. Armstrong, our expert adviser, told me time and again that the Nova Scotia boys he had here were the best boys for this class of business he ever saw anywhere, and we found that to be the case. They are of English and Scotch parentage; they are usually well brought up; and a great many of them are natural mechanics.

For mechanical or engineering work there is no place that I know of in Canada or anywhere else that is better than here for labor that is well adapted, and we can get it at a reasonable rate of wages, and we can train in this way. We have the raw material and a great many things in our favor.

System Develops Invention.

Our premium system has been the means of developing invention in our mechanics to some extent, but not yet to anything like the extent it should; but the men are seeing improvements in methods of doing work, which they discuss with the foreman.

The principal duty rests on the man who is setting these operations; he has to study it out and revise, etc., and he does not do much of anything else. When new methods for operation present themselves he writes down exactly how it is done, not depending on merely telling the mechanic, and then these operations are filled out on cards, giving the sequence of them, just how they come about; then if a workman requires any instruction this man will give it to him, and generally in a certain way, which is found to be the best way.

The increase in wages from 20c to 30c and 35c an hour was brought about by increased cost of living and other conditions, but we have had to meet that by our system so as to keep the cost of production as near as possible what it was originally, and we have pretty well succeeded in that.

APPRENTICESHIP SYSTEM OF THE DOMINION IRON AND STEEL COMPANY, SYDNEY, N.S.

Apprentices are employed in the Company's shops, which include the usual machine, pattern, blacksmith and boiler shops, foundry and electrical repair shop. They are bound for four years, and 3,000 hours are reckoned to constitute a year's service. The apprentices are employed as assistants to the journeymen and are given every opportunity to become proficient in the various trades. As soon as they are able to work by themselves they are given independent jobs. The rates of wages are as follows:—

First year	6.7c. per hour
Second "	9 c " "
Third "	11.2c. " "
Fourth "	13.5c. " "

In the roll turning shop in connection with the mills, apprentices serve for three years of 3000 hours each, the rates are:—

First year	14c.	per hour
Second "	17c.	" "
Third "	20c.	" "

Bricklayers' apprentices serve three years of 3000 hours, the rates of wages paid are:—

First year	7½c.	per hour
Second "	15c.	" "
Third "	30c.	" "

As soon as an apprentice has worked out his time he is employed as a journeyman, if he desires to remain in the Company's employment; and this usually happens, although occasionally a young man leaves to take employment elsewhere. A very satisfactory percentage of the number of boys who become apprentices complete the term of indenture, but there is always a certain percentage who do not. No attempt is made to enforce the engagement; if a boy becomes dissatisfied, and he cannot be persuaded by his foreman or superintendent to continue, he is allowed to go.

SECTION 6: WELFARE ORGANIZATIONS.

DOMINION COAL COMPANY EMPLOYEES' BENEFIT SOCIETY.

The objects of this Society are:

To protect the interests of its members, and to promote the principles of good will and humanity amongst them, both in their relations as fellow-employees and as servants of the Company;

To provide benefits to sick and injured members and to provide for the dependants of deceased members;

To provide old age and disability pensions.

Management. The chief executive officer of the Company shall be ex-officio President, and there shall be a Board of Directors appointed to represent each branch.

Benefits. In addition to benefits mentioned in the statement, there is a grant of $150 to any man losing one foot or hand, this grant being paid on the expiration of the sick benefit. In case of loss of both feet or both hands or total loss of eyesight, the grant to be increased to $450.

Old Age Pensions. A fund is being accumulated for this purpose, and a scheme will be formulated in due course. In the meantime the Directors are empowered to grant old age pensions to employees who are unable to earn their own living owing to age or disability.

Dominion Coal Company Employees' Relief Fund.

Under the Constitution the Company and the workmen contribute equally, and the Government contributes 3–10ths of a cent per ton on all coal sold.

Based on an average of 8,000 employees, the workmen, paying 50 cents per man, will contribute $48,000. Allowing for an output of 4,000,000 tons, the Government's contribution will amount to $12,000. This, with the Company's contribution of $48,000, will make $108,000 for the year.

In regard to benefits, no distinction is made between sickness and accident, believing that a workman incapacitated by sickness is as much in need of relief as a person injured in the mine. Records of previous years show that 65% of the amount paid for weekly indemnity was for sickness. It is generally admitted that miners, as a class, are above the average in regard to number of weeks' sickness per 1,000 employed. Any scheme which provides for accidents will only take care of 1-3rd of all cases in need of weekly indemnity. The indemnity is $6 per week for the first 26 weeks; half-weekly indemnity, or $3 for the next 26 weeks, and $2 per week for the two years following. After that the Society has the power to make special grants in deserving cases.

It being almost impossible for a miner to get accident or life insurance, except at a rate almost prohibitory, a Society such as this provides the best means of support for his wife and family in case of disablement or death.

If a workman dies either from sickness or accident, his dependants receive a death claim of $100, the widow receives $8 per month for five years, and each child receives $3 per month till the age of 14.

Examples of what families would receive in case of death:—

Wife with no children will receive	$ 580
Wife and one child, age 1	1,048
Wife and two children, aged 1 and 3	1,444
Wife and four children aged 1, 3, 5, & 7	2,020
Wife and six children aged 1, 3, 5, 7, 9 & 11	2,308
Wife and eight children aged ½, 2, 3½, 5, 6½, 8, 9½, 11	2,956

Besides this, the Government makes a special grant of $50 in the case of the death of any workman.

These benefits came into effect July 1, 1910, when all the then existing Branches were amalgamated into one general Society with a central Board of Directors, which consists of one representative from each Branch—the Company being entitled to an equal number—and these have charge of all moneys and property of the Society. There are branches at all the Collieries and Under Committees of Managers at each branch, who must approve of all claims before being paid. These committees consist of nine persons—four elected by the workmen, four appointed by the Company, and one appointed by the Government.

The assets of the Society amounted to $47,000 on July 1, 1910, making together with a cash contribution of $21,000 from the Company, a total of $68,000. The liabilities of the Society, which are payments that will be made to widows

and orphans, amounted to about $24,000, leaving an actual surplus of $44,000. This surplus makes a good sound foundation for the Society starting out under its new Constitution and By-laws.

There is no question raised as to the cause or blame; the workmen gets his indemnity as a right under the Constitution of the Society. If it were otherwise, the Company would ask themselves, "Are we legally liable?" or the employee's first thought would be, "Can I get anything?" This is a state of affairs which does not help to bring the employees and the employers together, but rather has a tendency to drive them farther apart, and so prevent the good will and confidence which should exist between workmen and Company.

DOMINION STEELWORKERS' MUTUAL BENEFIT SOCIETY.

The objects of he Society are:

1. To protect the interests of its members, who shall be employees of the Dominion Iron and Steel Company, of Sydney, N.S., and to promote the principles of good will and humanity amongst them, both in their relations as fellow employees and as servants of the Company.

2. To provide relief as provided under the constitution and by-laws of the Society:—

(a) By providing allowances of money to members when by reason of illness or bodily injury they are unable to follow their regular employment and are deprived of their usual wage or salary.

(b) By providing definite grants of money to the representatives of deceased members.

(c) By providing old age and disability pensions.

All persons under 60 years of age and regularly employed in the service of the Company are eligible for membership in the Society, excepting such as are afflicted with any disease, disorder or habit or bodily defect tending to shorten life or incapacitate them for the performance of the duties required in their regular employment in the Company's service.

The affairs of the Society are managed by a Board of Directors composed of eight members elected by ballot at the first General Meeting, and an additional number to be nominated by the Company in proportion to its contributions. For example: If the annual contributions of 300 ordinary members should amount in the aggregate to $1,800, and the Company's annual contributions should be $600, the Company's delegates would be entitled to 100 votes at a meeting of the Society.

Funds.—The ordinary funds of the Society are derived:

1. From an entrance fee equal to one month's contribution, to be paid by each member on joining, and from fees to be paid monthly according to the following scale: Class A, 50c.; Class B, 75c.; Class C. $1.00.

2. From the Company, which shall pay not less than 25% of the aggregate contribution of the employee members.

Sick benefits are paid for 13 weeks as follows:—Class A, $5; Class B, $7.50; Class C, $10.00.

In addition to these rates, in cases of extreme necessity, the Board of Directors may make special grants not to exceed in any case the sum of $150; such special grants to be limited in the aggregate to $500 in any year.

For loss of one foot, or one hand, while engaged in the service of the Company, a grant is made in addition to the weekly benefits, and when payment of the same shall have ceased, according to the following scale:—Class A, $100; Class B, $150; Class C, $200.

For loss of both feet, or both hands, or of hand and foot, or of both eyes, while engaged in the service of the Company, a grant shall be made in addition to the weekly benefits and when payment of same shall have ceased, according to the following scale:—Class A, $300; Class B, $450; Class C, $600.

No grant shall be made nor benefit accrue in any case where disablement shall have been caused by drunkenness or other improper conduct.

In addition to the above Grants and Benefits, the Society shall pay the charges for services of surgeons who may be appointed to attend to members of the Society who may be injured while engaged in regular employment, and all charges for lodging, board and attendance in hospital for such members as may be admitted to the General Ward by authority of the Society or under its rules.

In case of death through illness or as a result of accidental injury while in the service of the Company, the legal representatives of deceased members shall be entitled to receive Mortuary Benefits increasing by lengths of membership, from one to ten and succeeding years, as follows:—Class A, $40 to $400; Class B, $53 to $533; Class C, $66 to $666.

In 1910 the total payments were $29,082; the surplus, $4,969; and reserves, $28,000.

CHAPTER VI: AS TO AGRICULTURE AND AGRICULTURAL EDUCATION.

SECTION I: NOVA SCOTIA AGRICULTURAL COLLEGE.

Information obtained from PROFESSOR MELVILLE CUMMING, Principal of the College and Secretary for Agriculture for the Province.

Agriculture has been one of the last branches of industry to receive careful attention by means of education. Its importance was not realized in early years when lands possessed virgin fertility and produced crops almost under any system of tillage and rotation, but depleted fields and reduced crops coming at the same time with increased prices have aroused the people of Nova Scotia, as elsewhere, to the need of study and investigation along agricultural lines, and also need of popularizing such knowledge as already exists.

In 1885 a School of Agriculture was conducted as a Department of the Provincial Normal School at Truro; in 1893 a School of Horticulture was established in Wolfville under the direction of the Nova Scotia Fruit Growers' Association. These schools attracted very excellent students and aroused an interest in matters agricultural, thus paving the way for the present Provincial College of Agriculture, opened in 1905 at Truro, the geographical centre of the province.

PROGRESS OF THE PROVINCIAL COLLEGE.

This College has firmly established itself, and is increasing in importance. It draws students from the three Maritime Provinces, as New Brunswick and Prince Edward Island have no such college of their own. Five years ago the students in regular courses numbered 17, and at short courses 40. In 1910 there are in the regular course 48 and in the short courses, 367, of whom 67 were ladies taking domestic science, poultry raising, dairying, etc. It must be remembered that the constituency is relatively small and that horticulture has not heretofore occupied the prominent position in Nova Scotia that it holds in other Provinces. The result of the college work has been a growth of sentiment in regard to agriculture, and there is a marked desire for information.

This college has been patterned in a large measure after the Ontario Agricultural College, at Guelph, Ont., and has received the benefit of the latter's success, while the work of the Federal Department of Agriculture, the growth of the agricultural press, and the general demand for technical education in all lines, as well as the results from the good work of students graduated and the impressions they created, have been features working towards success at Truro.

A distinctive feature of the College at Truro is its affiliation with the Provincial Normal College and the students of both institutions take instruction from members of the Faculty of both Colleges.

When the Agricultural College was first organized, there was a great deal of distrust, one sceptic being a neighboring farmer, who laughed at the college dairying tests as useless, but this man had recanted, and had addressed many farmers and also given testimony by heavy investment in stock-raising, and by making a profit of $800 on a 20-acre farm. Another illustration of the value of the College was given by a graduate who before attending college would gladly have accepted $400 a year for his services, but refused an offer as farm manager at $800 because he was making his own farm, though a poor one, worth $1,500 a year. A farmer came to the College bringing $600 and asked Principal Cumming to buy live stock for him, saying "You have kept two of my boys on the farm."

What the College Provides.

The College provides four courses:—

(1) The regular two years' course, graduates in which receive an Associate Diploma of Agriculture. It is anticipated that this two years' course will prove much more fruitful under present conditions than a four years' course in educating boys for lives on a farm instead of professional careers. Students who wish to receive the Bachelor degree in Agriculture complete their course at Guelph, St. Anne's and other colleges. St. Francis Xavier College sent several students, and priests are paying expenses of young fellows to go from their particular parishes to the college especially for the short courses.

(2) A two weeks' short course held in January, especially for the busy farmer and his son who cannot afford to be long absent from home. The attendance in this course in 1909 was over 300, of whom 70 came from Prince Edward Island, and 26 from New Brunswick. This short course has proved most popular, and has produced most marked results; it is also directly or indirectly furnishing the great majority of the long course students and in fact may be said to be the advertising medium of the college, by bringing into personal contact with the institution and its work farmers who might be still prejudiced or uninfluenced by newspaper articles, etc. The short courses consist of lectures and demonstrations in all lines included in the long course, members of the staff being assisted by experts from the Federal Department at Ottawa, from Guelph and St. Anne's, and also by Nova Scotians who have made a practical success of farming in various lines, the latter feature being highly appreciated.

(3) A two weeks' short course for women, held at the same time as the last mentioned, comprising domestic science, dairying, poultry raising, horticulture, with some women students in agriculture, animal husbandry, etc. The total attendance at this course in 1910 was 67, all being from towns except 12 from rural sections. This course has never been advertised as extensively as the other courses, and in addition these courses for ladies are looked upon as an innovation, hence the comparatively small attendance

(4) The Rural Science School for teachers, conducted during July and August in affiliation with the Provincial Normal School, attended by over 100. The numbers are too large for satisfactory work. The object is to bring the pupil teachers

directly in contact with the various phases of nature, and to encourage first-hand study of soils, plants, insects, birds, weather phenomena and everything of that sort which constitute the environment of their rural scholars.

The College and the Rural School.

The College management recognizes that the College reaches directly a very small percentage of those in need of agricultural instruction; hence they wish to carry at least the spirit of college work into the common schools and arouse interest among scholars in things pertaining to everyday life. Much remains to be done to make this Rural Science School as effective as it should be. Teachers are still under the influence of former systems, and look upon rural science as something tacked on to the course, and hence of not such importance as history, geography, grammar, etc. Further, teachers brought up under the old system of education have not yet acquired that intimacy with science which is necessary to teach it effectively.

Principal Cumming is of opinion that if agriculture is to flourish in Nova Scotia the school curriculum and the method of teaching in schools, especially in rural districts, must be gone into more thoroughly than it has yet been, for rural science should be as well taught and should occupy as important a place in the school curriculum as any other subject.

A curriculum has been arranged for students of the Rural Science School on the completion of which a diploma is awarded which entitles the holder to an extra Government grant when rural science work is taught in a public school. This curriculum covers nature study, general biology, botany, school gardening, and horticulture, insects, birds, agriculture, geology, physics, soil physics, chemistry, bacteriology, mechanic science—the latter including brush drawing, paper and cardboard modelling—woodwork in making plant press, insect box and spreading board or equivalent models.

The Provincial Government pays transportation charges of all teachers who complete the course to the satisfaction of the instructors, and under the regulations of the school law, an additional week or two of vacation may be obtained by teachers taking the summer course. The work is so arranged that it would be possible for almost any teacher to complete the requirements for the diploma in three summers, and one already proficient in the subjects could do so in one term.

During the term of the Rural Science School the forenoons of six days in the week are devoted to class work, and the afternoons of five days to field excursions and individual work in the laboratories. A due allowance is made for reading and study along the lines of the course which a student may prove he has done between the terms.

Description of the College and its Work.

The Agricultural College consists of a main building in which are laboratories and class rooms for biology, bacteriology, agriculture, horticulture and mechanic science. (The Mechanics and Physics laboratories are at the Normal School, with which the Agricultural College is affiliated.)

There is a separate dairying building fully equipped, live stock judging pavilion and a farm of 205 acres with appropriate stock and poultry building.

The farm stock is of high quality and utility so as to provide not only demonstration of profitable production of live stock products, but also to stimulate an interest in improved live stock, which it is generally remarked is the most needed improvement in the general farming of Nova Scotia. The great demand by the the people for stock of this kind is sufficient evidence of its appreciation. The farm could sell ten times as much of this improved stock at good prices as was disposed of during the past year. This shows that the people are receiving and appreciating the work of the College in regard to improved live stock; and the value of this feature will be manifested not only in the preservation of the natural fertility of farm lands, but in the interest it arouses in the country boys for all forms of agriculture.

The work of this College has been in teaching and demonstration rather than in experimental and investigation lines, chiefly because the amount of funds placed at their disposal is limited, and also because the Federal Department of Agriculture conducts at Nappan (within 70 miles of Truro) and under almost identical conditions, an experimental station where soil cultivation, field crops, horticulture and live stock are dealt with, while a similar station for experimentation and fruit growing is about to be established in the Annapolis Valley. Principal Cumming is not altogether satisfied with present conditions, but hopes before long to be able to command some means of effecting better work along the lines of experiment and investigation.

College extension work has been begun, though it is not yet as comprehensive as the College Principal would like.

SECTION 2: OTHER AGRICULTURAL ORGANIZATION AND WORK.

In almost every County there is a regularly organized County Farmers' Association, and scattered all over the Province are 179 Agricultural Societies. Under these organizations members of the College staff, assisted by experts from the Federal Department and men actually engaged in farming in Nova Scotia, have delivered lectures in all branches of agriculture and given demonstrations in live stock judging, treatment of diseases of animals, spraying, drainage, etc.

The College has also sent travelling dairies for a number of years, which have visited almost every county in the Province. These travelling dairies have been attended with splendid success. Principal Cumming says that the improvement in the butter is testified to by every man dealing in it, and by every hotelkeeper in the Province.

Specially qualified judges have been supplied for fall fairs, in order to make these exhibitions more educative.

A series of co-operative experiments with crops, fertilisers, etc., have been instituted, similar to those of Experimental Unions in Ontario, a series of Field Crops competitions in cereals and turnips, together with local encouragement of

the work of the Canadian Seed Growers' Association. These are having a marked influence in arousing greater interest in the growing of improved crops. A number of private citizens are contributing prizes for the encouragement of these competitions, the postmaster at Amherst having given $50 for four prizes for boys under 18 who grew the best half acre of turnips—a crop particularly suited to Nova Scotia and which should be grown in much greater quantities. Another man in Antigonish has given a similar prize.

Demonstration Orchards, Drainage, Etc.

Under the direction of the College of Horticulture some 33 model or demonstration orchards extending from Yarmouth in the West to Cape Breton in the East, located in counties which have not yet developed fruit growing, are being cultivated and cared for. These orchards are placed on the farms of representative men in those communities, and after ten years are to become the exclusive property of the farmer who owns the land. The educative value of these orchards has already been considerable by demonstrating that many varieties of apples, etc., are not suited for sections outside of the regular fruit-belt. In a general way the establishment of those orchards has been a very considerable stimulus to the development of interest in fruit growing. Some fruit-growers are demonstrating that orcharding is a profitable business; others are demonstrating the opposite. Horticulture in a large way is confined to the Counties of Annapolis and Hants.

Bulletins and educative articles are issued, and members of the College staff, assisted by various experts, have been issuing a series of articles, a distinctive subject being taken up each year in connection with the annual report of the Secretary for Agriculture. These articles have dealt with sheep raising, dairying, soils and soil cultivation, fruit raising, etc., and have increased several fold the demand for the stereotyped reports, which are also more carefully read than heretofore. In this way the farmers will be furnished in the course of a few years with a series of reports containing articles upon every phase of agriculture which will constitute a good working library.

Following the publication in the annual report of several articles dealing with drainage in various aspects, arrangements were made for farm surveys to be conducted at minimum expense by College representatives, and a traction drainage machine was purchased for operation, the object being to get as much drainage as possible done so as to serve as an extensive demonstration of the value of underdrainage. The college authorities are draining lands at about 20 cents per rod, which is about one-half the cost of doing it by manual labor. This is being done because of the educational effects that follow, and the machine is booked for two years ahead.

Provincial Agricultural Associations.

The following organizations, whose work is largely educative, exist in Nova Scotia:—

(1) Nova Scotia Farmers' Association, which derives its membership from County Associations, Agricultural Societies and Exhibition Boards; holding annual

meetings for discussions and recommendations on general agricultural interests of the Province. Following a discussion of the curriculum of rural schools a resolution was unanimously carried in favor of the more extensive teaching of Nature Study in schools.

(2) County Farmers' Associations exist in almost every county, having been organized by the Provincial Association which it represents. These hold agricultural meetings, and in some instances exhibitions and seed fairs, and conduct college extension lectures.

(3) The Nova Scotia Fruit Growers' Association, related to fruit growing as the Farmers' Association is to general agriculture. This Association, established and conducted by the School of Horticulture which was afterwards merged in the College, has been the prime mover in arranging for the fruit growing experimental station shortly to be organized at Kentville.

(4) The Nova Scotia Co-operative Fruit Growers' Association, a commercial Association composed of 11 local co-operative Associations, organized in the last last few years.

(5) Agricultural Societies, of which there are 179 scattered throughout the Province, existing principally for encouraging the improvement of live stock and farms. The Government gives each Society a grant of from 80c to a dollar for each dollar privately subscribed, and with this money the Societies for the most part purchase pure bred stock. They also serve for the co-operative purchase of seed, feeds and fertilizers.

(6) Exhibitions, Fall Fairs and Seed Fair Boards. Nova Scotia supports one Provincial Exhibition held annually at Halifax; upwards of a score of fall fairs and seed fairs; and also co-operates with the other Maritime Provinces in supporting the Winter Fair at Amherst. An effort is being made to make these institutions more distinctly educational than formerly.

School Garden Work.

Mr. Percy Shaw, teacher of Horticulture at the Agricultural College, who has supervision of the Government Model Orchards, and who was Director of the five Macdonald Rural School Gardens around Truro from 1903 to 1906—each of these schools being provided with a garden—stated that the garden work was used as a basis for nature study, science, language, drawing, number work, etc., and added to the interest and educational value of this work in each case. No attempt was made to teach technical agriculture or gardening.

In Mr. Shaw's opinion the essence of successful garden work for the education of children was to have them interested in and fond of growing plants either at the school or at home. A small area may be better than a large one, but the garden work should be felt as a pleasure, and the work done voluntarily, never under compulsion. There should be definite financial support. He considers that nature study is a method quite as much as a subject, and if properly taught it need not be a subject "tacked on." The Normal College work of nature study, arithmetic and drawing can be taught by using the same models and the same

methods. Though nature study is added as a separate course, the work with young children might be done incidentally.

Many attempts have been made to utilize a scheme for country schools that would be a graded curriculum leading on to general practical education, but a perfectly satisfactory course has not yet been devised. The villages and small towns and cities take the lead in this as in many other things. He thought Nova Scotia ready for such a movement if means were available to employ some person who can give his whole time, and with the co-operation of teachers work up such a course. In his experience nature study did not upset anything else taught in the schools; on the contrary it evidently benefited the other school work, and also looked towards the industrial training of children in the country schools.

Cut Out the Dead Wood.

Mr. Shaw would not drop any subject in the common schools for nature study, but would reduce the number of useless topics in some subjects, because there is a lot of dead wood carried in a number of subjects in the Common and High Schools that ought to be cut out to allow far more valuable subjects to be taught.

As an example of successful language teaching in connection with nature study, Mr. Shaw told of a teacher of a rural school near Truro to whom the children brought a noxious insect known as the "cut worm" which they had found in the garden. They were interested because it had destroyed some of their own plants. It was put in the terrarium and kept until it had developed to the pupa stage, and finally came out as an adult moth. The scholars were greatly surprised and interested to see the change that had taken place, and the incident was used as a basis for a language lesson. The teacher placed on the blackboard drawings of this insect; then the children gave her an account of what the insect had done at different stages. It was thus used as a drawing lesson, a language lesson both oral and written, and an exercise in penmanship for the children. In that way nature study might be used in second year school work without displacing any subject, but in higher grades it should be separated.

SECTION 3: THE BRANCH DOMINION EXPERIMENTAL FARM AT NAPPAN.

Experiments were made during 1910 with the following: Spring Wheat; Durum or Macaroni Wheat; Emmer & Spelt; Oats; mixed grain; barley; peas; buckwheat; Indian corn; turnips; mangolds; carrots; sugar beet; potatoes; clover; alfalfa. Experiments were also made to determine the practicability of restoring run-out land: a series of tests with fertilizers, and with lime and commercial fertilizers on marsh or dyke lands, were carried out. The hay crop was the heaviest cut for many years; apples and strawberries were poorer than usual; vegetable crops of all kinds were sown. The horses on the farm are kept exclusively as work animals; some experiments were made with dairy cattle. Sheep, poultry and bees are kept. Grain and potatoes were distributed to farmers, the total

number of samples sent out being 814. Produce was exhibited at various shows in the Province.

Dr. MacKay, Superintendent of Education, says that money is needed to develop a much stronger experimental department at Truro. The farm at Nappan has 250 acres, but is 70 miles away from the Agricultural College, and the work could be carried on as well at Truro if the money were available. If it could be done it would justify a much larger expenditure, and the work would be better done. It would be an immense advantage to have the equipment and facilities at Truro for the students.

SECTION 4: SUMMARY OF OTHER TESTIMONY IN RELATION TO DEVELOPMENT OF RESOURCES.

AGRICULTURE.

More education in the 8th grade would make a better farmer as well as a better citizen. Travelling instructors would reach boys of 15 to 18, and furnish a supplementary system for boys from 14 to 17 who do not go to High School. Elementary Agriculture at this age would tend to keep children on the farm. Evening classes in summer would attract young people and be beneficial, especially if related to daily work in the orchard; the travelling instructor could give valuable hints if he spent a day in the orchard. One witness says, "I cannot emphasize too strongly the desirability of early training along the lines of nature study and agriculture."

More publicity is needed for agricultural work and colleges. The Agricultural College at Truro needs a boarding residence before farmers will send their boys there. Public addresses, supplemented by visits to farmers, would be good. Boys should go to Truro at 14 or 15 and take a course on weeds and insects. School gardens would help the children and money is well spent on keeping up good schools. What is needed more than anything else is the proper education of the farmer to develop the land and produce the material necessary for the large market available.

An Illustration Farm would help, and bring about a revival. Any improvement in agriculture would benefit the whole of eastern Nova Scotia, and this could be done without interfering with other industries, such as coal; in fact, it would benefit coal and iron people by cheapening living. Provisions are dear, owing to the long haulage, and consequently wages are not so high as they appear to be. There should be smaller farms, better cultivated. Farmers are becoming more desirous of information, due to the excellent market for their products if only they can supply it.

FISHERIES.

Any system of Technical Education for Lunenburg district must include a navigation school. Government should subsidize such schools. Marine schools teach what should be known at sea. Navigation schools throughout the Dominion

would help the trade and make more competent men by increasing their ability and the safety of shipping and would keep men in the Canadian service, whereas now they go elsewhere. A travelling school might be of some help and a correspondence school is better than nothing, but not so good as local school. There is lack of opportunity for the education of those who are to be captains; classes for young men who will be captains in the future would be an advantage and a step in the right direction. Boys have to go to sea so young that they cannot get much education, and night classes for these boys would be very beneficial and should be compulsory to a certain standard. There is also need for classes for boatbuilders and designers to improve fishing boats.

There is need for improvement in the curing and packing of fish. Carelessness and ignorance of curers is the cause of irregular quality; instruction would prevent this, but would be difficult to impart. Instruction in curing on the Norwegian plan would be good; also sending men around to different ports to instruct the fishermen during the winter when they are not busy. Fishermen could be given instruction on methods similar to agricultural instruction, by a practical man. The fisheries could be vastly improved, but only by demonstrating improved methods. Fishing people are intelligent, but conservative and slow to take up new ideas. Fishermen's Libraries should be established at different points to bring to their notice in a systematic way the results of experiments and the advantage of carrying them out. Reports of the Fishery Commission should be summarized and made available for fishermen. The Fishery Intelligence Bureau does good work. Weather reports should be telephoned to fishing stations.

Several witnesses state that buyers need to be reached before the fishermen; people should be educated in the food value of fish as compared with other things, and Domestic Science Schools can help in this by showing how to cook fish in the best way.

A campaign of education is needed to ensure better transportation, on which the fish industry largely depends.

Industrial training would be good for the fishing industry, and leading men in the locality would assist in maintaining a demand for it. It would benefit all local industries, including fishing. The efficiency of fishermen could be largely improved; they could produce more fish if they had technical and scientific knowledge. Men who handle nets and boats need technical education. The net fishing industry in Scotland was developed through technical education. Curing requires more training than catching, though the labor is unskilled except the foreman. Drying is mechanical and artificial, and does not require technical education, but packing does, and also pickling. Evening classes would help in teaching the curing process.

Fishermen need education as much as farmers, and should be taught to catch and treat fish. An aquarium, as in British Columbia, would be a good thing; also a Fishery Board to regulate packing, size of barrels, etc., as packing affects the value. Fishery Boards in the Old Country have improved fishing, and produced the merchant, curer, government standards and inspection.

The shell-fish industry is becoming depleted for lack of technical knowledge, and the public needs instruction to save oyster beds. Efforts to improve fisher-

men have failed owing to their conservatism; e.g. in refusing cold storage bait. There is no hope for industrial training in the fishing industry except through adapting it to the existing needs and conditions of the industry.

MINING.

A coal miner states that if he had made things with his hands and measured and laid them out on paper, he would have remembered his arithmetic better. Mining schools and night schools help a man to work with more advantage to himself and his employer; they help to prevent accidents and teach men what to do if accidents occur. Miners would be more intelligent if they went to night schools twice weekly; it should be made compulsory. Lectures on ventilation, illustrated with apparatus, would be useful and interesting. Schools should be organized and advertised. Men require knowledge of the principles of mining.

The education of miners is well taken care of in Nova Scotia, and in addition to practical training all superintendents in the Acadia Coal Company have taken night school or correspondence courses. The Steel & Coal Company compels apprentices to go to night school and pays fees for average of 80% marks. Boys should take the practical side before going to college. Miners in general would like to have evening classes for their sons; lectures on usefulness of this knowledge would help. More illustration work, chemical experiments and apparatus are needed. Technical education has been a good thing. Mining schools are more helpful than a technical college. Mining schools have reduced accidents and made men more careful and efficient. Thorough training for foremen by men knowing practical conditions would make mining safer. Evening classes for boys leaving at 6th grade would be good and should be made attractive; a more practical training and higher standard of education are needed. Drawing and manual training are good for boys going into industry. Practical experience is absolutely necessary in any case, but technical education helps men to higher positions. The industry could be carried on better if more men took evening classes; the trouble at present is that men stop as soon as they have their certificates.

A travelling instructor demonstrating exuding and making of gases, etc., would be an improvement to the mining school, and a feeder to the technical school. A demonstrator with a big screen would secure recruits for evening classes, and a series of public lectures would be most beneficial. Evening classes should be canvassed for as much as the Scranton Correspondence School is.

There is a general desire for education in the community, and the mining schools enable men to work more skilfully; wider knowledge makes them more ready to accept new inventions. It is an advantage to any business to have well educated workmen. Many workmen have had a poor public school education, and would need day schools for mathematics and after that night technical schools in various centres, leading to either Sydney Higher Night School or Halifax. Many men would take classes for general education, and need it before attending evening classes. Classes could be made more practical and interesting by demonstrations.

In some districts men cannot get to mining school, and for these the correspondence course is an almost ideal system. Men who are to have responsible positions

must be trained. Night schools supplemented by correspondence course are good for a scattered population. One witness expressed the opinion that "a man gets most when he is reading and working." Another considered that a big mining college is needed, as night schools do not go far enough. Many ore train operators take correspondence courses, and would like a technical college, as also men who run machines, but meanwhile they would go to night school. The fact of bringing men together in classes is beneficial, as they discuss difficulties.

GENERAL.

Boys should be able to get training for their trade as soon as they have decided what they will be. At 15 they ought to be at practical work. Manual training on a small scale is wonderful; it gives a boy an incentive and makes him useful. Nowadays boys do not get as much practical work at home as formerly, so they need manual training more. The present system leaves a boy of 14 very unfit to face the world; formerly they had less book education, but were more fit. The State should look after boys who have to leave school early.

Most employers in Nova Scotia would be willing to agree to any means for improving their employees, for the more intelligent and efficient the boy, the better it is for his employer. The main thing is to inspire men with ambition, and then they will attend classes.

CHAPTER VII: AS TO WOMEN'S WORK IN INDUSTRIES.

Statement by Mrs. F. W. Sexton.

The National Council of Women appointed Mrs. F. W. Sexton, of Halifax, to collect and present information relating to the employment of women throughout Canada and she gave the Commission a full statement, accompanied by correspondence.

The question of technical education for girls is more complicated than for boys, as women ultimately become homemakers under new and involved industrial and economic conditions. This is particularly true in large cities. It is necessary for many women to be wage-earners not only before marriage, but during marriage when their husbands are unable to support the family, and as widows. The problem therefore is very involved. Changes in economic conditions have swept away the home as a place where the girl obtained her vocational or technical training. Women have followed industries from the home into the factories, and are now obliged to earn money to buy commodities they formerly made—bread, butter, clothing, etc. With the departure of industries from the home has gone also the development of habits of industry, of definite aims and purposes, and of efficiency which makes for the best type of character and is essential to home-makers, who form the most important of all economic factors.

Those women who can afford to attend High Schools and Colleges must ultimately become home-makers, and should therefore have instruction in domestic economy, sanitation, heating and lighting, also, as consumers, they should know something of the scientific principles governing production. In Halifax the High School is deficient in respect of training along scientific or technical lines. There should be some sort of elective courses or scientific courses running parallel with the other.

Women Workers in Canada.

The fact that women are in industry may be deprecated, but the fact remains. On the basis of the conditions in United States, where 6,000,000 women between the ages of 16 and 25 (1 in every 15 of the population) are engaged in gainful occupations, there would be 500,000 in Canada. It is perhaps not fair to take the same basis of calculation, however, as our population is not congested in large cities, and our industrial conditions are different.

In Halifax there are between 2,000 and 2,500 women in industries, which would bring the number in all Canada to 300,000, while there are many women working for money beyond those ages who are not household workers, and others who do not now but who have worked in industries.

The figures worked out for the United States—which would probably apply to any community of the same sort—show that 9% of all women in industry are

in professions—teaching, nursing, medicine, law, etc. Pretty nearly adequate training is provided for all these. About 10% of women enter commercial pursuits as salespeople or in clerical work, and adequate training is provided for them in High and Commercial Schools, though nothing has been done in Canada in teaching women the art of selling and handling goods. About 16% of industrial women enter agricultural pursuits, for which Canada provides adequate opportunity by colleges, women's institutes, etc,. though agitation is needed to encourage and stimulate women to take up poultry raising, dairying, floriculture, etc., which offer fine chances for development, and are specially fitted for women.

The Domestic Servant Problem.

25% of all working women enter manufactories. The remaining 40% are employed in domestic service, etc., who must be trained through their mistresses in household economy, and also in a taste for domestic service which will dignify that training. So far it has been found impossible in the United States to train domestic servants to any extent, though some Young Women's Christian Associations have been fairly successful.

From investigations made in Halifax it would seem to be not impossible to train domestic servants, and make their mistresses agree on a minimum scale of wages and definite hours of work. Several girls volunteered to take such training if they could get it. Living conditions in Halifax are very pleasant, however, and there are no very large industries and department stores calling girls away.

What is the School Doing?

What is the public school system doing for these 65% of the women? In the very best places less than a third, and in the very worst places less than a sixth, of the girls have entered High School grade but begin to drop out of school at grade five at the rate of 20% per year.

In Halifax there are 500 girls at home between the ages of 14 and 17. Of these, 350 have never been beyond grade 8 and very many not beyond grade 5.

Perhaps one half of such girls in Halifax and throughout Canada stay at home to take care of the other children; but from 50% to 75% of girls out of school are obliged to earn their living in some way or help at home. What are they being trained to do? They have domestic science and sewing in the public school, but no boy or girl has been able to earn his or her living on the strength of training received in mechanic or domestic science. It could not be expected that a woman could be trained in 100 hours, (about two weeks' working time). The Public School must give them an equipment which will enable them to develop themselves as individuals and members of the community, or in industrial life if they have to enter an industry—to step right out and take a gainful occupation where that is necessary.

Leading to Unskilled Industries.

Training in Halifax schools in sewing, which is necessary for any girl if she is to enter any of the trades, is not systematic or graded, but is more or less perfunctory and dilatory. The girls not at school drift about and go into unskilled

trades, such as candy dipping, packing, paper and cardboard industries—all sorts of occupations that bring on tuberculosis and curvature of the spine, doing the same thing over and over again under conditions absolutely stunting and deadening. After three or four years these girls marry; and what kind of homes can we expect them to make when they have not been taught to do one single thing properly with their hands, and have been driven about amongst harmful moral and physical influences? Perhaps some of them pick up a trade, but this is increasingly difficult. Dressmakers do not want to be bothered teaching girls; they would rather import those already trained. Just when girls are at the most critical age and susceptible to influences of all kinds they are dropped into the midst of these low industrial conditions.

There are many industries which are called skilled, among them so-called "needle" industries, ready-made clothing manufacturing, dressmaking and millinery, but for lack of training women enter the unskilled occupations, or the unskilled portions of the skilled industries.

Two Classes of Women's Industries.

Most industries for female work unfortunately fall into two classes—domestic service and what are called the "needle industries." Training for the latter would include possibly ten different industries. Mrs. Sexton would never pick out one firm's definite industry and say, "We will train girls for that one store;" but all industries demand plain sewing of white garments, the designing and making of undergarments, the making of children's plain wrappers and clothing, plain costumes, making of woollens, prints, etc. No girl between the ages of 14 and 17 would be allowed to cut and fit in an industrial establishment, but training in these lines, accompanied with domestic science, business English and arithmetic, would train many if not most of the girls for the skilled industries to which women have to go.

The training of young girls engaged in unskilled occupations would not be successful unless in cases of unusual girls who could climb. Mrs. Sexton did not think there were many girls working in candy or cotton factories who could be got to attend school. Though bootmaking is one of the skilled industries, women are largely employed in the unskilled parts of the work; but, if that industry were large enough in any place it might be one of the best in which to train women. We have to take the skilled industries which exist, and enable girls to earn their living at them as well as possible. If all skilled hand industry is abolished and machinery is introduced, we shall have to train women for that. It is a fact that unskilled labor is greatly increasing with the introduction of machinery. It is a question whether we can ever train girls who work under factory conditions in unskilled industries; but Mrs. Sexton thought that girls the age of those in candy and cotton factories should not be allowed to work the whole time, and that possibly some arrangement might be made with the factories whereby they would not. Amusements for such girls are very limited in Halifax. While there are parks and open spaces where they can walk at night, there are no legitimate amusements like the "People's Palace" or anything of that sort; nothing but nickel shows, which are more or less iniquitous.

Tests as to Suitability of Industries for Women.

The tests for industries in which a woman can engage are that they must be clean and sanitary; must have no injurious physical or moral influences or lead her away from her ultimate work of home-making; and they must offer living wages and afford hope for her advancement and development.

Investigations show that the needle industries, millinery, dressmaking, men's tailoring, etc., are the only ones for which there is definite training in Halifax, where over 1000 women are engaged in industries that are practically wholly unskilled. It would not pay to train girls to enter boot and shoe work, in fact they usually enter as stitchers, which is untrained work.

The objection to women engaging in unskilled work, such as candy-making, is that these unskilled trades are run under unsanitary conditions; that in mechanical operations the women have to use no thought, hence mental growth is absolutely stunted and ambition stifled, and the women will never reach a higher plane. As there will always be enough riff-raff to carry on unskilled occupations, why should we want to train men and women to go into these, asks Mrs. Sexton. When employers cannot get women to carry on such occupations, she argued, necessity will probably cause the invention of suitable machinery. In any case, you will never be able to train all the women out of unskilled industries. She was speaking on behalf of ambitious women who must get a living wage, and who are now forced into either skilled or unskilled industries, for whom work in the former would be possible if they had the necessary training. Unskilled industries do not promise the money which is essential to an unmarried woman—firms in Halifax offering only from $2 to $4 per week, with an average of between $3 and $4 per week.

Girls' Trade School after 7th Grade.

Just as there is a High School at the end of grade 8, ready to take the few pupils who have time, ability and inclination to advance, so there should be trade schools at the end of grade 7 to meet the wants of the many who must immediately earn their living with their hands. Such trade schools, while giving definite trade teaching under actual shop conditions and trade hours, should continue the work of business English and business arithmetic, penmanship, etc., and should help all girls in household science and sewing, etc., even if they had no chance of becoming skilled workers, for no trade school would be able to do without continued training in household science. If a girl can go on into the collegiate, let her do so.

The trade school is suggested simply for girls who must earn their living by their hands, and for the large percentage of girls who leave school early. An investigation has shown that probably 70% of these girls would remain in school another year if they could. Their reasons for leaving are because they need money, and because they are not getting anything in school that holds their interest. It has been found that parents would try very hard to keep pupils in school for another year if they could thus gain an adequate and honorable living by starting in an industry at a point far in advance of any they might

have reached after years of aimless drifting about in such industry. Girls in Boston are placed immediately in good paying positions after such training. Such a trade school would make a girl more efficient as a factor in the home as well as in an occupation. The plan of allowing girls to give one half-day at ordinary classes and one half-day at something like a trade school would meet the need.

Trade Classes Day and Evening.

Besides the ordinary trade school, there would have to be provided for a long time trade classes, both day and evening. Mrs. Sexton had talked to 60 or 70 girls who wanted evening classes to help them rise higher in their particular industry, for they said if they knew more they could get on. Such classes would help them morally, socially and industrially, and out of them would perhaps come schools which might be called trade schools, which would help the girls to appreciate themselves, give them an opportunity to develop as individuals, and make themselves of the most use as women and home-makers.

Suggested Changes in Public Schools.

It would be a move in the right direction to extend the present domestic science work downward and upward to take girls below and above grade 8; that would fill a very definite want in those girls who go to domestic service, and the more advanced want of mechanical training for domestic capacities.

Mrs. Sexton did not think the public school could meet the case without giving part of its time to trade training and including in its teaching staff actual workers in trades and industries, for industrial work must be made actual and practical in a trade school, or it would be useless to girls, and the industry would not be established. If it were possible to bring trade training into the public school and have all under one organization she thought it would be better in the end, but she would like to see the experiment tried first by itself.

The tendency in other places has been to incorporate the whole thing in the public school system and she thought that in Boston it had suffered in so doing. In Halifax it is impracticable to try the experiment for women on exactly the same basis as industrial processes for men are carried on—the Government paying half the cost of teachers, and the municipality paying the other half and providing the buildings. Some extra-provincial financial assistance is needed.

SESSIONAL PAPER No. 191d

PRINCE EDWARD ISLAND.

CHAPTER VIII: AS TO EDUCATION.

SECTION 1: INTRODUCTORY.

Educational affairs in this Province are managed by a Board of Education, consisting of the Premier as President, 8 members of the Government, the Principal of Prince of Wales College, and the Chief Superintendent of Education. The Local Government pays the teachers' salaries, some school districts voluntarily adding what is called the "Supplement," which on the average amounts to about 10% of the salary.

The total expenditure for Education during 1911 was $181,177, of which the Government contributed $126,439, the balance coming from school districts for school houses, contingent expenses, and as supplements to teachers' salaries, the latter amount being $24,568, an increase of $776 over 1910, and more than three times what it was in 1900. Out of 479 school districts, only 26 voted no supplement to teachers.

School attendance suffers from the movement of families to the western Canadian Provinces. The total number of pupils attending the Public Schools in 1909 was 19,073, about 10 attending rural schools to 1 attending town schools. In 1910 there was a falling off from this total of 141, and in 1911 a further decrease of 535.

The percentage of average attendance in 1911 dropped to 60.4 from 64.8 the previous year, the highest ever reached. This decrease is observable in every county. The Chief Superintendent attributes it mainly to the depletion of the ranks of the best teachers during the few years preceding, their places having been filled with young and inexperienced teachers (one inspector gives their ages at from 16 to 18) whose aspirations are not concentrated on their work and their pupils, and who are not able to attract their scholars and inspire them with a love for their school or enthusiasm in its work. Examiners at the matriculation examination in 1911 reported a decided falling off in neatness, accuracy, spelling, writing and arithmetic.

School Grades and Accommodation.

It is the duty of school trustees of districts to provide free school privileges for all children from 5 to 16 years of age who reside in the district; those above 16 have the right to attend without charge if the school accommodation is sufficient. The latter must be as follows:—

For a district having 40 pupils or under, a house with comfortable sittings with one teacher; for a district with 70 to 100 pupils, two class rooms with one teacher and two assistants, or two departments (primary and advanced) and a good class room accessible to both with two teachers, and if necessary an assistant; for a district with 150 to 200 pupils, three departments (primary, advanced and high school), at least one class-room common to the two latter, with three teachers, and if necessary an assistant; for a district with 200 pupils and upwards, sufficient accommodation for different grades of primary and advanced schools so that the ratio of pupils in primary, advanced and high school departments may be 8, 3 and 1.

The schools of the city of Charlottetown and the town of Summerside are managed under special regulations.

Industrial Education Not Provided.

There is no organized Industrial Education on the Island; no Manual Training except in Charlottetown and Summerside and at Hillsborough Consolidated School; no Domestic Science except in the Prince of Wales College and the school at Hillsborough. There are no evening schools in the towns and no short winter courses in the schools for grown-up farm lads, except at Hillsborough Consolidated School for three months in the winter, which was very successful as far as it went.

There are Manual Training Centres in Charlottetown and Summerside, and at Hillsborough Consolidated School. At the first named nearly 200 public school boys took this training in 1911. Hillsborough gives also Nature Study with School Gardening.

Prince of Wales College, Charlottetown, provides Manual Training for boys and girls aged 16-20. The work consists of Drawing and Woodwork. Girls receive Manual Training during only one year. Domestic Science is provided for all the girls. Teachers-in-Training at Prince of Wales College are given a course of Manual Training or of Domestic Science.

The girls of Charlottetown had Domestic Science for a year under the Macdonald fund, but the School Board, though professing to be favorable, had no funds to continue it, and the City Council said they could not afford it. It was not a question with the School Board as to its utility or advantage. One witness said the parents favored it much; that the pupils were intensely interested in it, originated the petition to have it continued, and were very much disappointed; that the committee metaphorically went down on their knees to the School Board to have it continued, but the City would not advance the money.

There is a small School Garden in connection with one school in Charlottetown. The teacher said it was too small to give the pupils all they like. It was divided into class lots, and every individual pupil works. It is carried on almost exclusively on the basis of Nature Study work, an hour weekly being given during the planting and growing season. The children are very much interested. It is found that the child most interested in Domestic Science and the School Garden is better in the other studies, and the year they had Domestic Science that was no detriment to the usual academic work of the school.

SESSIONAL PAPER No. 191d

SECTION 2: A PROVINCIAL COMMISSION ON EDUCATION.

A Commission appointed by the Provincial Government in October 1908 spent a year investigating educational matters on the Island and schools in other parts of Canada, also in England, Scotland, and part of the United States. The Commission was due to expressions of public opinion that the schools were not as good as they had been years before, that the number attending them was too small, that text books were unsuitable, that consolidation of schools would secure better teachers and make better schools, and that agriculture as a subject should have more attention in the schools.

The Chairman of the Commission (Mr. D. C. McLeod K.C.) had been disappointed with many of the Island Schools visited; he had expected something better in numbers and in the manner of teaching. He noted listlessness in the scholars, and his Commission had found that school life and home life were two distinct things. He thought if the School Garden could be introduced with success it would tend to unite home and school and make pupils familiar with the common things about the home besides helping in teaching the ordinary subjects. He suggested reducing the summer holidays, appointing further vacations at a season when roads and weather were bad. As the Island weather is not hot, he thought school work might go on without interruption through the summer except for perhaps a fortnight, by keeping the windows open and shortening the hours of the school day.

Reforms Called For.

The Provincial Commission found the people generally evincing great pride in the general intelligence of the population, but feeling strongly that education must make progress and that the schools should go on from good to better; that schools should be well equipped, with teachers well trained and mature in judgment; that careful administration of school money as well as of the time and energy of children demands larger and better schools, and as far as posible the elimination of ungraded one-department schools; that compulsory school attendance up to a certain age or measure of attainment should be enforced. The tragedy of the schools, as the Commission remarks, is the disappearance of pupils aged 12 or 13. Children who have long wearied of the idle hours spent on the back seats of the school room while the teacher was engaged with other classes, and to whom the book and unsolved problem suggest work unaccomplished, leave school at this early age with little more than a habit of listless idleness and dislike for books and everything associated with school. Many parents complained of shipwreck and failure of their children, and the charge of inefficiency is often brought against the educational system without any precise knowledge of where the fault lies. All that strengthens the argument for improvement through consolidation.

Nature Study Recommended.

The Provincial Commissioners urged that Nature Study should have considerable place in the school course, as affording pupils the means of acquiring

much information of value and interest, and as of great practical use in its direc- bearing on agriculture. They suggest that in the two highest grades Nature Study might merge into elementary agriculture, including not only school garden work, but home work, feeding and caring for animals, pruning and spraying trees, etc., the pupils to observe results and report to the teacher from time to time.

They argued that the prosecution of Nature Study would tend to cultivate strong attachment to country life, and thus help to check the drift to towns and cities. They showed how Nature Study comes in close touch with other school subjects, geography being, in one aspect, really a branch of it; experimental and natural sciences both in method and manner, being simply the development of it; graphic representation by drawing being well nigh indispensable to Nature Study, and Nature Drawing being one of its most obvious and useful forms. English composition receives a wealth of material from Nature Study; arithmetic and mathematics, dealing with quantitative expressions and results, obtain appropriate problems and examples; while the construction of various sorts of apparatus, required in Nature Study work, affords a ready medium for Manual Training.

But however important Nature Study may be, the Provincial Commissioners do not recommend it in schools which lack qualified teachers; and School Gardens should be introduced only where they can be well kept. Otherwise they would be only an eyesore and an object of derision. Where gardens cannot be properly maintained, strips along the sunniest walls of the school-house should be planted with flowers, or at all events there should be window boxes or flower beds.

The Provincial Commission recommended that Prince of Wales College should have a qualified Professor of Nature Study who should be a graduate of some Agricultural College of high rank; that the course should include Natural Sciences as well as elementary Agriculture and Nature Study, and that there should be a well-equipped garden in connection with the College.

Manual Training but not Domestic Science.

As Manual Training is now being taught in Prince of Wales College and in the Normal School, the Commission recommended that this subject be introduced into schools where suitable work rooms can be had, the training being utilized in making implements of practical use on the farm.

The Provincial Commission regrets that under existing conditions it cannot recommend that Domestic Science be taken up in the rural schools, as the only way in which practical instruction could be given would be by the itinerary method. Needlework, however, should be taught in every primary school irrespective of sex, and continued by girls through all the grades.

The Provincial Commission carefully studied the principles of consolidated schools, and strongly urged their adoption. They gave a long list of reasons in favor of consolidation, and after thoroughly going over each school district, its road system and physical conditions, suggested a rearrangement of districts appropriate for consolidated schools.

SECTION 3: INFORMATION FROM THE CHIEF SUPERINTENDENT.

The Superintendent of Education, Dr. Alexander Anderson (since retired) gave our Commission information from his many years of intimate knowledge of the schools and their work. He said that sewing is not taught generally in the Common Schools—only here and there. He thought this a great mistake, as sewing would lead towards Industrial Education. From time immemorial sewing had been taught in every parish school in Scotland as part of the original curriculum. In two convent schools in Prince Edward Island, at Miscouche and Souris, he had seen some exceedingly creditable needlework; pupils were taught to plan and cut different work and to sew. It was not fancy work, but such as would be required in the regular conduct of the household.

A good deal of Nature Study is given in the Rural Schools, but not nearly so much as the Superintendent would like to see. He did not think the curriculum too heavy, and other features would not have to be dropped in case of introducing Domestic Science, Manual Training and Nature Study, because a great deal of time now is frittered away, and these additional subjects would tend to concentrate the teacher's work.

While there is no compulsory law, a certain proportion is deducted from the teacher's salary, if the average attendance falls below 50% of the total enrolment, and this sum must be made up by the district or the defaulters—primarily by those parents who did not send their children to school. There is a good deal of friction when a man is assessed for such default, because many of the delinquents are very poor people, but the plan works well. In case the delinquent cannot be called upon the second time for assessment, the burden falls on the whole school district.

In the opinion of the Superintendent, writing has improved amazingly of recent years, but he was afraid poorly made figures were still common, though much better than they used to be. The cause of the bad writing is that pupils are set to write without supervision from the teacher when the latter is engaged with another class.

Evening classes in centres like Charlottetown and Summerside would, the Superintendent thought, be capital in helping boys who leave school at 15 to keep their education fresh, and they would appreciate it all the more when they begin to feel the need of its aid in their regular vocations. He knew of lads who did not enjoy school work and had to be taken away and sent to a trade, yet who of their own accord went back to evening school and did well in studies relating to their trade.

He believed that School Gardens well maintained would aid rural education. Where adopted they had done exceedingly well. He knew of a number of cases where boys who had taken part in School Garden work maintained nice gardens at home with great pride and in a good many cases he had noticed tree planting in the neighborhood of these homes.

SECTION 4: SUMMARY OF OTHER TESTIMONY ON EDUCATION.

Consolidated schools are much opposed by farmers on the ground of their expense, but they have done good and witnesses think the rural schools should be made larger and more modern.

The opinion is expressed that the schools train away from the farm; that agricultural education is needed; that teachers should attend short agricultural courses at the Experimental Farm.

Nature Study should be taught in all schools. Trained teachers of Agriculture are needed.

School Gardens at present are not much good, and are difficult to maintain, though generally approved of if the vacation difficulty can be solved; a winter vacation is suggested instead of the summer one.

Girls should get Domestic Science training. Some witnesses think they get it best at home, and that success of farm work largely depends on women's work at home. Domestic Science and sewing should be more generally taught, as the girls at the present get their dresses made in the city instead of making them themselves.

Complaint is made that not sufficient attention is paid to writing. There is a cry for better attendance at schools; better schools, for which it is believed people are willing to pay; also a better class of trustees. Some believe that the only remedy is taxation by the Province and large school sections, not small districts. The Government is willing to help, but public spirit is lacking, and the people need working up.

Prince Edward Island has not established night schools in industrial or agricultural districts. Night schools are needed in Charlottetown, and would be attended if rates were reasonable. Attendance should not be compulsory. Mechanical drawing should be included; shop foremen could teach. Most working men would be glad to go.

A business man of Charlottetown said he found young fellows pretty well trained for office work, but handwriting is not as good as it ought to be or as it used to be years ago, because of too many changes in the style of writing in the schools.

VIEWS OF INSPECTORS ON SCHOOL GARDENS.

Inspector McCormick thought the people would favor the children's time being taken up with the School Gardens—an excellent feature, in fact a necessity, in rural schools. Some work would have to be done at first by the teachers in the gardens at the homes of the pupils, and a little monetary consideration given to the teachers. Such work would be a good way to educate them. He recommended maintaining trial demonstrations, then conventions where teachers could discuss the School Garden idea during the winter.

Inspector Boulter described to our Commission the School Garden work at Tryon. Plots were managed singly by advanced pupils, by two intermediate

pupils, or by two or three primary pupils joining; the boys generally dug the plot. About half an hour a day was spent, the result being improvement in regular school work, in entrance examinations for Prince of Wales College, and in fact more pupils matriculated. The School Garden was an addition to the Nature Study Class required by the Department. The scholars in Tryon, in competition with all the farmers, carried off 4 out of every 5 prizes given for judging seed grain. Some teachers who are remaining in the profession are taking up the matter of School Gardens. If teachers remained more than a year he thought something could be done on these lines; but out of 165 departments in his charge last year, 100 teachers either left or were engaged in other schools, and very young teachers took their places; hence it would be difficult to get teachers coming from the College to take up this work in summer unless compelled to do so. Of course, teachers could teach Nature Study if it were taught in College, and if they were required to do so. They could get a good deal of information by attending to a good School Garden for six weeks. The failure now is because the majority of teachers are not competent to lay out or carry on School Gardens, and there is a lack of interest in ratepayers to make the School Gardens a success.

In his report at the end of 1911, Inspector Boulter sadly writes:—

School gardening is almost a thing of the past; and with it Nature Study is also going, and all attempts at teaching the beginning of Agriculture, apart from the text-book. This is due to lack of interest on the part of the ratepayers. Without some aid, gardening cannot be carried on. Yet without a garden, a teacher may kindle by well prepared talks on some plant, animal, or operation on the farm, a spirit of interest in the pupils. The teacher in doing this, has a greater force to work against than the lack of a garden; that force is the home influence which, in the majority of cases, forms the impression in the boys' minds that the farm is a place of drudgery. A greater number will stay by the farm if they were enthused by their parents with the honorableness and importance of Agriculture.

SECTION 5: PRINCE OF WALES COLLEGE, CHARLOTTETOWN.

This College was founded in 1860, and amalgamated with the Provincial Normal School in 1879. As at present constituted it is intended to provide for young people of both sexes a liberal education in literature and sciences, and also to educate and train teachers for the Public Schools of the Province.

In 1911–12 there were 278 students attending the College,—the largest number ever enrolled.

The percentage going into teaching is dwindling. A good many prepare for teaching who do not go into the schools. Teaching is a sort of stepping-stone, possibly more so in this Province than others, on account of the comparatively low salaries.

About 30% of the students take First Class lessons, requiring practically two years' attendance with very little professional work. Observation work is carried along in the classes, and a Debating Society discusses professional subjects in the course, so that the total time given to strictly professional work is perhaps

a fifth. Academically these First Class lessons are about equal to the entrance work for the University, and are accepted as ordinary matriculation.

While the College has no connection with the Public Schools of Charlottetown for practice work, there are 5 departments in the Model School patterned practically after the Public School, in which work is done in observation and practice.

This College is practically the High School of the Province, for though the Island has what are known as "High Schools" they have not the standard of those in Ontario, but fall probably two years below the matriculation and their students have to finish at this College.

The Training of Teachers.

The Provincial Commission on Education was convinced that the Normal Training of teachers was insufficient, and in their report insisted on a minimum of 1½ years for the two parts of a teacher's preparation—at least nine months being given to academic work, and four months being the smallest unit of time to be considered for professional training. Students who wished to terminate their course at the end of the first session would be granted permits to teach, valid for two years; those who wished to qualify for second-class licenses would attend another session divided into two parts for academic and professional work; students holding second-class licenses who wished to qualify for first-class licenses would be required to attend for academic work for a third session; those holding first-class licenses who wished to qualify for High School licenses would be required to pass an examination falling at the end of the Second Session in the prescribed course of reading, representing general literature and school management.

At present teachers are required by law to stay only five months in the third class or lowest form, which is taken by from 5% to 10% of the students. In the second class, which includes from 55% to 60% of the students, they are required to stay 5 months, but as the academic work required for the license demands a full nine months' session they stay for that length of time.

Secondary education is carried in the highest class to the first year of Arts, and is accepted by McGill and Dalhousie Universities.

Vocational Subjects Taught.

All girls in the College get Dmeostic Science, and all students get Manual Training and Nature Study. These branches have about 8 periods per week out of 30 periods. They do not affect the other studies at all except possibly in the amount of class time. Students come in very poorly prepared from some of the Island schools, hence the work is quite heavy, but these vocational studies are really a relief to the student's brain work in other subjects.

Some correlating is done, the teachers of Nature Study and English arranging that the composition shall be on a Nature Study subject, one exercise thus serving both departments.

Physical training is compulsory.

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SECTION 6: MACDONALD CONSOLIDATED SCHOOL, HILLSBOROUGH.*

This School at Hillsborough was visited by our Commission, a luncheon being served by the Domestic Science class, and an exhibition of drill given by the cadets. The School Garden, containing both flowers and vegetables, was examined with interest, and the Manual Training work was seen to good advantage.

In view of the fact that the Commission on Education in Prince Edward Island, after long and careful inquiry, reported in favor of consolidation of rural schools, it is fitting that a somewhat full report, supplied by Mr. S. LeLacheur, ex-Principal, of the Macdonald Consolidated School should be given, as it contains many points suggestive to all concerned in the improvement of education.

Conditions Before Consolidation.

Prior to 1905 each of the six districts—Cross Roads, Bunbury, Mr. Herbert, Mermaid, Bethel and Hazelbrook—had a one-roomed rural school, the buildings being in most cases uninviting and the surroundings bare and cheerless. The teachers had no special training, and were supposed to teach classes in all the subjects from A.B.C. to Latin. Pupils attended irregularly, as shown by an average attendance of 60%. Boys over 12 usually attended for only a few months in winter. Lack of interest was evident both on the part of pupils and parents. Individual taxes ranged from 20 cents to $5.20 per annum. The average contribution by the ratepayers was but 11 cents on the $100 property valuation, and the total salaries received by the six teachers amounted to $1,190. During the five years previous to consolidation these six districts matriculated but one pupil to the Prince of Wales College.

How It Worked Out.

For the first three years after consolidation the six districts contributed merely their previous assessment on property valuation, but since that time three of them remained in consolidation and agreed to pay 40c. on the $100 valuation. Individual taxes now range from 80c. to $20.80. There is a voluntary fee of $2 per pupil for the first three in a family; pupils from outside districts pay a tuition fee of $5; the Provincial Government pays the statutory grant.

Pupils are conveyed in comfortable vans to a school of which they are justly proud. The average attendance has risen from 60% to 74%. Specially trained teachers have charge of properly graded classes and have suitable equipment for their work.

The course of studies has been enriched by Manual Training, Household Science, School Gardening and Nature Study, Music, Drawing and Physical Culture, all taught by specially trained teachers during time which would be wasted by classes in ungraded schools. Pupils are broadened socially by a widening of

* Since the visit of the Commission this school has been closed temporarily from lack of financial support.

experience due to larger classes and increased attendance. They develop habits of industry by being continually under the eye of the teacher, and the 95% who never go beyond the Public School receive a training which better fits them for their life work.

Pupils have beautified their home grounds with lawns, shrubs and flowers; they have swept the Provincial Exhibitions of prizes for their products, and have competed successfully with the Charlottetown schools in inter-scholastic sports and football. The talent of the six districts has been brought back to the school and developed in the Literary and Social Club and in the Annual Concerts.

During these five years the School has matriculated 20 pupils from these same districts, which produced but one for the previous five years. It has also had pupils from 27 outside districts, and has matriculated 20 of them to the Prince of Wales College. Visitors coming from all parts of the Province have returned to make improvements in their own community and visitors from other Provinces —Earl Grey among the number—have held up this school as an object lesson in their efforts to improve educational conditions all over Canada.

Special Class For Farmers' Sons.

In 1910 an extra teacher was appointed so that the Principal might be free for a special class for farmers' sons along the lines of the Agricultural High School movement in Ontario. This object lesson to the Province was made possible by the generosity of Dr. Robertson. Two evenings per week in the early autumn were devoted to practice in judging live stock, so that the big boys might be fitted to take part in the judging competition at the Provincial Exhibition. Those classes were sometimes attended by older farmers and created a great deal of interest. Eight boys took part in the competition and won $30 of the $60 offered in prizes.

Young men became so interested that they were enthusiastic over the idea of a special class for them at the school. At the end of November this class was organized, the course covering English, arithmetic, book-keeping, geography and history, anatomy and physiology, live stock, poultry, dairying, farm crops, agriculture, botany, horticulture, farm chemistry, physics. The admission fee was 50 cents a month for all residing in the Consolidated district and $1 for all others. 16 boys ranging in age from 16 to 23 were enrolled; 5 came from the regular grades, and 4 from outside districts, driving or coming by train. Two of the 16 were later induced to join the Prince of Wales entrance class in the hope that they might continue their education at the Agricultural College.

The boys read widely and brought up questions for discussion in class. Most of them bought books on agriculture and stock judging, and took note of other books which would be of special value on the farm. They also sent to various Departments of Agriculture for reports and bulletins, and are thus beginning to build up libraries of their own. They visited the Fruit Growers' Association and received a special demonstration. Most of the class applied for scholarships to attend the free course at the Nova Scotia Agricultural College, and four received and took advantage of them.

The boys receive from Agricultural Colleges improved seeds and are now conducting experiments on their fathers' farms with alfalfa, six-rowed barley, Quebec yellow corn and winter wheat. Some of them are keeping daily records of milk from each cow in the herd.

A farm library embracing $100 worth of books including agricultural papers, books and bulletins was made available for the studies.

There is no trouble in keeping these boys on the farm. They are setting to work with that application of intelligence which will help to solve the problem of rural life and raise farming to the rank of any profession.

This extension work attracted such attention throughout the Province that requests were received for addresses on the subject at Farmers' Institutes, the Summerside Seed Fair, and the Provincial Teachers' Association.

Advantages of Consolidation.

The regular work of the school was done in 9 grades. The total enrolment was 142, 29 from outside districts—11 came at their own expense from districts formerly in consolidation and paid the fee required from outsiders, the remaining 18 coming on the train or boarding near the school.

The vans missed a couple of days on account of bad weather. Two of them were driven quite satisfactorily by big boys who attended school. The drives to and from the school are usually much enjoyed by the pupils. By community co-operation in road improvement the cost of hauling might be considerably reduced, and pupils would not be so long on the road.

The work of this central rural school gives some idea of the advantages possible through consolidation. In the Kindergarten room the teacher with only three grades has time to introduce music, drawing and cardboard work, and each child has its plot of flowers and vegetables in the garden. In the more advanced rooms cardboard work gives place to Manual Training for the boys and Household Science for the girls, and these subjects may all be taught by specially trained teachers.

The garden, instead of being an expense to the school, is really a source of revenue. Last spring, seeds of vegetables and flowers were started in boxes in the window, and as the weather became warmer were removed to the green-house and cold frame. Pupils were supplied at reduced prices with seeds and plants for their plots, and orders were filled for the surrounding community. The boys of the upper grades had experimental plots on different farm crops, whilst the girls had a kitchen garden and flower border of annuals. The garden system of this school has attracted attention in other Provinces.

Manual Training is of the greatest importance as a foundation for Industrial Training. The boy applies arithmetic in his drawing, and develops habits of neatness and exactness. One boy made a pair of hames, and another a picture frame. The average cost of this Department is $15 per year.

The Household Science department has been made self-sustaining by the ready sale of products.

Physical culture, music and recitations, and exercises have been carried on with excellent effect.

What is Needed.

Referring to the development of consolidated schools, Mr. LeLacheur's memorandum states that Prince Edward Island is the only Province which requires two languages besides English for entrance to its High School or Academy, and suggests that either French or Latin be eliminated for matriculation to Prince of Wales College. If this were done, he believes that so many pupils would go beyond the Public Schools that each county would likely require a High School or Academy, as in the case of Nova Scotia. He adds:—

"This question of rural education must be met, not only in the Consolidated District but in the whole Province. The cost of education must increase if we are to have a system in line with twentieth century progress, Nowhere in all Canada can consolidation be better worked out than in Prince Edward Island with her rich, level country and dense population of progressive people. Nova Scotia has 22 such schools. The ratepayers of the consolidated districts in Nova Scotia and New Brunswick pay as high as $1 on the $100 property valuation; and the Governments give special grants to encourage Manual Training, Household Science and School Gardening. The Government of Nova Scotia also gives a special grant to teachers who have special training."

Exhibition by the School.

Principal Crockett, in his report for 1911, thus speaks of a distinctive feature of the work of this school: the exhibit at the Provincial Exhibition in September.

Here may be seen the finished product of the school garden, of the workshop and of the classroom. On the first floor of the main building there was a general exhibit of potted plants, cut flowers and garden vegetables; in the balcony was an artistic array of kindergarten and manual training work; specimens of pressed flowers, noxious weeds, and a second collection of cut flowers and garden vegetables. Here also were drawing books, maps and exercise books—the work of the pupils of the various grades. The exhibit this year included 38 varieties of garden vegetables, 36 varieties of potted plants, and 22 varieties of cut flowers.

In potted plants we won 15 first prizes and 7 seconds; in cut flowers 3 firsts and 6 seconds; in vegetables 4 firsts, 4 seconds and 4 thirds; in manual training 2 seconds; in Kindergarten 2 firsts; first for best collection of noxious weeds correctly named, first for collection of cut flowers, and first for best collection of garden vegetables. The partial failure of the cut flowers exhibit was due to an untimely frost that cut down all but very hardy annuals early in September.

CHAPTER IX: AS TO INDUSTRIES AND RESOURCES.

Premier Haszard in welcoming the Commission at Charlottetown, expressed the hope that some technical instruction might be given along the lines of agriculture, dairying and fisheries, the chief industries of the Island. Owing to divided jurisdiction in regard to the latter, neither the Provincial nor the Federal Government is taking proper steps to protect, encourage or propagate the various fish. In industries there are some machine shops, foundries, sash and door factories, and others.

There has been very great progress in agriculture all through the Province because of more interest being taken in the subject of agriculture and the improvement of crops. Even before the Provincial Department of Agriculture was established, men were sent by the Dominion Government and held meetings and aroused interest.

The Islanders ship a good deal of produce to the old country; not as much to the United States as some years ago; and the Canadian market is a good one. It is felt that anything that would improve farming would benefit all and injure none, hence Industrial Education would be a good investment as a means of increasing and improving farm products.

A great deal has yet to be learned as to curing and packing fish that would be of value to the Islanders. Lobsters were not as plentiful in 1910 as the previous year, but those engaged in that fishery think there is no need for anxiety about the future. Oyster fishing is very important and valuable, but needs protection as beds are suffering somewhat from overfishing.

FISH, CHEESE, COLD STORAGE.

Mr. Horace Haszard, a business man in Charlottetown, said he had handled quantities of fish, but the system of curing had deteriorated from what it was years ago when there was a large quantity. There are various reasons for this. Hake was largely caught at one time, the "sounds" being worth about $1.45 a lb., but they got so high that a substitute had to be found, and the price dropped to 25c; hence the fishermen found it useless to catch this fish. The same thing applies to codfish. Newfoundland cod come into the market much better cured than ours, and on account of poor curing, shippers of large quantities of fish to Havana and other places found the business did not pay, and dropped it. There is more demand and better prices here for fish to-day than 20 years ago, when more were caught. Last winter it was hard to get sufficient codfish here properly cured to satisfy the home demand, and some orders from the Pacific coast had to be filled from Gaspé. Codfish are just as plentiful at certain times as they ever were, but the fishermen found too small a demand for the cured article as they

fixed it up, and they have got out of the way of it considerably. The business has decreased very largely on the Island, as consumers are becoming more particular than they were years ago in the quality of the goods. If they could get such men as the Scotchmen who came out to Canso to show how fish could be properly cured the business could be largely increased.

The methods adopted to push dairying on the Island did everything for this Province. Complaints are coming about the heating of cheese arriving on the other side, although the Government have a man following it from the place of shipment to destination. Witness had often wondered why the Dominion Government did not give the Island a cooling room, because cheese cooled in such rooms commands from 1c to 1½c a lb. more than in any other way; but nothing of the kind had been furnished, and the Island is at a disadvantage, because cheese is becoming a very important factor in the Province. The temperature of the Island is cool, though in July and August there are some pretty hot days, and within a week witness had seen letters containing more complaints than usual as to heated cheese landing on the other side.

There were night schools here years ago, but none to-day. They would be a great advantage. There should be more industries in the Province than there are and some there were years ago are not now in existence; but the Island has too much politics. Some of the progressive men have been fighting for years for Cold Storage, and now that it has been established and is one of the greatest things they ever had in the Province, and would open up several lines of trade that they had not been able to touch at all, politicians are going through the country crying down the Government for giving a little assistance in that direction. If the people in the Island would stand together in pushing policies making for the efficiency of the people, they would be far better off.

TRANSPORTATION AND FISHERIES.

Mr. A. B. Warburton, M.P. for Queen's Co., said that fishing is widely engaged in, particularly on the North shore—codfish, halibut, mackerel, hake—but the fish are not cured so as to get the best price. Some years ago Mr. Cowie came here and took up the question of curing herring, but witness did not think this had been ever thought of in connection with other fish. Fishermen are very unwilling to take instruction from a teacher in words. A fisherman lives for to-day, not for the future. Formerly codfish were brought to Souris and cured, so that they could be sent down to hot countries and bring a better price.

There are no industries outside Charlottetown except the cheese and lobster factories. The Island turns out very little furniture. All over the Island there used to be carriage builders, but large factories can supply so much cheaper than local shops that the latter have been shut up for some years. The good woods of the Island have been largely exhausted.

Transportation facilities are poor. The Island Railway does not give the co-operation it might, and regular service across the Channel all the winter is exceptional. When witness was Premier 5 years ago he was detained 29 days on the steamer, and was 33 days getting from Ottawa to Charlottetown. That difficulty prevents

Island people from going into manufactures. That year a large quantity of smelts were sent down on a winter steamer, but they were destroyed, and great quantities of meat met the same fate. Something might be done with a plan to send these things out during the nine months when there is transportation, letting people look elsewhere for the other 3 months. One man has recently commenced putting up dry steamed codfish, a sample of which was very excellent. Mr. Warburton dealt fully with the matter of oyster fisheries and their development, of which he had made a special study.

Transportation Difficulties.

Mr. E. Bentley, President of the Board of Trade, Charlottetown, said the Board was concerned with the improvement of agriculture as well as of industries; the Board did not go so much into agriculture except as it affected commerce, but would be very cordial to any system or method of trade education to improve industries or promote trade. One of the principal difficulties in developing industries is the expense and delay in transportation. The high cost is the result of the "3 short hauls"—the first on the Island to the point of shipment, the second across the water to the mainland, and the third from the mainland point to destination. This has been a matter of complaint and grievance for years. The delay of boats, especially in winter, and weather changes, cause spoiling of meats and other perishable products. People who had contracted for supply of meats between here and Sydney, Nova Scotia, had to give it up, because the regularity of the supply could not be depended on, and customers refused business. Frozen smelts would be valuable business if shipped to Boston and other ports, but material loss has been met with in that industry.

Mr. Bentley believed they had more loss from these causes than other parts of Canada. In the shipment of freight they were closed up for about 2 months one winter, which was exceptional, but there are periods of several weeks' delay. The fear of such stoppages prevents the development of business. They cannot ship to any considerable extent in winter time, when the price is best, say, for potatoes. With proper transportation, trade and prices would be better. To overcome these difficulties, they will have to qualify themselves to produce better and cheaper articles. Cheese is an article that will not be spoiled by delays to the same extent as other products.

The transportation problem caused frequent comment, farmers on the North side being handicapped by lack of connection with Southern parts, while Northern parts are very difficult of approach. Though poultry is one of the largest businesses, the boats of the Steam Navigation Co. running to the mainland will not accept eggs in cold weather, notwithstanding the difference in price, 25c and 50c, as between Charlottetown and Halifax or St. John.

The lack of transportation is interfering with the agricultural industries. On oats, one of the prime products of the Island, the freight rate from Montreal to London or Liverpool is only a fraction of a cent more than from Summerside to the mainland, less than 50 miles distant.

Islanders have to pay three freight rates to any outside points—on the Island Railway, on the steamer, then on the mainland railway to shipping points. In the winter, when the Government runs the steamer as well as the railways, all three hauls are made by the Dominion Government; hence rates could be lowered.

To overcome this freight handicap, farmers should be instructed to produce more concentrated products such as cheese, butter, live stock, etc. The Island is fitted for fine fruit and vegetables, but nothing is now done in canning these.

Oyster Culture.

Mr. Herbert Inman, Summerside, is getting small oysters from the Government from Richmond Bay, or when this is impossible, importing them from the United States, as they come in duty free and grow faster than our native oysters. He had experimented for two years before buying. Had bought oysters from the size of a 10-cent piece up to 4 inches, which would be about 3 years old, and marketable. The quality of United States oysters when they arrive here is not as good as the native ones, but small ones are just as good when they mature. The small oysters cannot be obtained in Canada for planting. One of the greatest dangers of the oyster industry is the taking away of the small ones. If taken away under 2 inches they would be very unprofitable, for they would never reproduce themselves, whereas if of proper size they will double themselves in two years. There is great room for improvement in oyster culture. They are usually taken up in October in the open season, until the frost comes early in November. There is no trouble in disposing of all there are. They are sold by the barrel. Small ones are not sold, as they are more valuable for planting, but there are always some small ones that will get in. The dealers all want large ones, even though they get fewer, so it is best to keep oysters till they get big. Only large oysters will be shipped, because the small ones have not given off any "spat,"—a technical term for spawn.

Difficulties with Bait.

Mr. Alex. J. McFayden, Summerside, said that one difficulty in the fishing industry is to keep the fishermen supplied with bait. In certain seasons they get a certain supply by netting; then, when mackerel and herring become scarce, it is next to impossible to secure bait. The freezers have in part met this difficulty, and the fishermen say it is better than no bait, but not as good as fresh bait; it keeps them going for a time till mackerel come again. Mackerel are continually migrating from one position to another along the coast; they are found in one spot one day, and perhaps 10 miles away the next. The principal fishery is the lobster, then cod, then mackerel, then herring, and so on down.

In this section owing to the difficulties of transportation, salmon are canned. Lobsters are being fished out. The bottom dropped out of our fishing in 1909–10, and immediate and radical efforts are required to revive the industry, which witness was afraid is not permanent.

Lobsters Being "Fished Out."

In 1905 fishermen experimented on a new trap, and it has been in general use since 1907. When this new trap went into use it simply cleaned them out. In 1883, a man in a boat with 150 traps, would land with 10,000 lobsters and upwards, reckoning 280 lbs. to a trap. About that rate continued till 1890, but some of the fishermen reduced the output per trap to 133 lbs. In 1903, in order to equal the man who fished in 1883, 4 boats, 8 men and 1200 traps were required, and in 1910 it will take 7 boats and 14 men and 2100 traps to equal one man in 1883. This shows the very rapid depletion, and the worst feature is that the fish being caught are immature. They have not come to the years when they reproduce.

A lobster must be 8 inches before it will spawn, and then it will produce 5,000 eggs; the quantity of eggs increases with its growth so that a 14 inch lobster gives about 80,000 eggs, and of course has very much greater food value. In 1883, canned lobster was worth $4 to $5 a case; in 1910 it was probably $15 or $16.

Witness suggested putting the lobster fisheries in the hands of an independent Commission that would appoint and control their own officials. While there are laws enough on the statute book, no effort is made to enforce them; the wardens do not do their work. It is necessary still further to reduce the time allowed for fishing. In this Province one season is sufficient. In the Gulf of St. Lawrence there are two seasons.

Education Needed for Fishermen and Canners.

Education is needed for the fishermen and the canners, for people in other parts are able to ship fresh fish, which is a good thing; but the fresh fish are displacing the canned. The previous spring, fresh mackerel were quoted very high in Boston, and a private shipment was tried, but it was found that the fishermen worked in a large measure for the express and transportation companies; hence they are deterred from taking the full benefit of the fisheries, because of transportation difficulties. The Island has sea fish as good as there are in the world, if not the best, and Canadian cities are ready to take them from us if they can get them, but fishermen are not inclined to work for the transportation companies.

Smelt fishing is a winter operation, and quite important to the Island revenue, being about $30,000. There are men with fishing trawls now earning $12 to $15 a day. Since the 16th of May one man and his son had got $300 worth; but the fishermen are being called away from here, and the country is being drained; the men fish in the spring and then go West on the harvester excursions; though some of them come back, many will not.

CHAPTER X: AS TO TRADES AND LABOR.

Mr. Andrew McNair, Charlottetown, General Manager, Bruce Stewart Co., a trained mechanic, served 7 years under apprentice bonds on the River Clyde at Glasgow; employer also would have to forfeit bonds if he discharged witness. That system could not well be operated now; it would suit some men, but not others. Witness during apprenticeship was handed a piece of work to do, and if not correctly done, he was censured, and tried to do it better next time. He had to pick up the trade by watching other men; he got little instruction; did not go to Night School; learned to read plans by himself; did not have a chance to make any drawings while an apprentice; never had any instruction outside of shop work, but read a lot of textbooks on his subject; would have liked to go to Night School; instruction from an advanced and skilful man would have helped him considerably and not injured his health.

Apprentices now under witness serve three or four years, just as they wish. If a boy thinks he knows a thing, he is a journeyman and leaves. The training is not systematic. Witness was quite sure the young men in the shop would like Evening School because he had been several times asked if he would not get up that kind of thing for them, and he would encourage young fellows to go. It would not be workable to make it compulsory; he thought they would be only too eager to go if they had a chance, if the school were good and would not cost a great deal. As the lads would have to pay their own fees he thought the people, through the Government, should step in and give a helping hand. There was quite a need for Evening Schools, and he believed Germany was a proof of this.

Object-Lessons and Evening Classes.

It would be a good thing if mechanics were taught by object-lessons; e.g. taking the machinery apart and seeing the actual thing, so that they could understand it and compare it with drawings. At present some men could not comprehend drawings; but with a model cut in section right through the middle the object could be explained. Mechanical Drawing taught to those men would be a good thing.

Correspondence Courses, which some of the men are taking, are not as good as having a teacher present to explain difficulties arising at the time, because Correspondence students forget what they wanted to ask by the time the answer comes back. During apprenticeship, education in methods in the schools is good, but application of formulas in that branch has to be done by some one knowing it particularly. Such teachers could be found here. The foreman of any shop would explain these things well.

Young men working on fine engines would be better able to establish and carry on small businesses as masters by attending Evening School.

Manual Training would be a good thing for boys if it gave them nothing but the names and uses of tools. It would have been a great help to witness.

Witness would not offer to shorten time of apprentices who attended Evening

School, but might offer a premium to those who got promotion in school. He would himself like to attend Evening School for drawing and mechanics and said that the general feeling in the shop was that pretty nearly all would attend, especially the younger men. He thought that was true of these in town learning other trades. It would be a decided advantage to machinists if they learned to draw.

Witness' employees are mostly all machinists, who work from 7 to 6, at from $1.50 to $3.50 per day. Men are paid according to ability, and the one who has the better education is the better machinist.

Mr. T. L. Aitken, Charlottetown, Acting Foreman in railway shops, in charge of 13 men, never served any time. There are no apprentices in the car shops. There are plenty of well trained men, and very little unemployment. The work covers building and repairing of passenger and freight cars, and turning out all railway stock on the Island Railway. There is trouble in getting well-trained men. It would be better to have Evening Classes for the men to learn about drawing and strength of woods; cabinet makers learnt simply by occupation. Timber for cars is nearly all imported, birch and spruce being the only woods obtained in the Island. Men work 10 hours, from 7 to 6 and 4 o'clock on Saturdays all the year round.

Mr. J. Collins, Charlottetown, fitter in railway shop for 22 years, served four years in machine and fitting shop here. Got no help outside the shop except from textbooks. There was no Evening School. Witness would attend one if available at reasonable rate, and had no doubt that seven-eighths of the men would attend, as they all had time. No doubt Manual Training would have helped him.

Mr. Frank Hobbs, Charlottetown, 4th year apprentice, now serving his time with Bruce Stewart Co. in the machine shop, said he left West Kent School 4½ years ago; got Manual Training for probably a year there. Children now get three years. It helped him considerably, as he had to draw his own models, and made him more accurate in his work; it was a good thing for machinists. He had not attended classes since he became an apprentice, but read books and journals obtained from bookstores every month, which kept him in touch with the outside world in mechanics. Witness would attend Evening School, and he thought others would, and that two nights a week would be a great help, and not a strain on health, especially in winter. It would not make a fellow more tired than loafing around all evening, for loafing does not give much amusement or benefit. If pupils could see at an Evening School such models and sections as Mr. McNair mentioned, they would take more interest in it; they did not take much interest in such things when they read about them in books. Practical experience would be the best thing.

Witness said that his work hours are till 4 o'clock on Saturdays in summer, and 6 in winter; he never had Saturday afternoons off unless he asked permission. He found it pretty hard for young fellows to get recreation in Charlottetown. He knew of none whatever now, as the Y.M.C.A. is closed for certain months in the summer, and anyway it is too expensive for the majority of the working classes. There are no games whatever, unless a fellow belongs to some Clubs, and baseball is played in the daytime, when the working class cannot have that amusement; then at night it is dark, and they cannot get out to take such amusements.

CHAPTER XI: AS TO AGRICULTURE.

SECTION 1: INFORMATION OBTAINED FROM Mr. THEODORE ROSS, SECRETARY FOR AGRICULTURE.

Boys who had returned to the Island after attending courses in agriculture at Truro, N.S., had opened up books and kept proper accounts to see what money there is in farming. These boys are making plenty of money. Their farm problems satisfy their ambitions, hence they are staying on farms where cattle are fed and milking is done, but they become dissatisfied when oats and other cereals are sold off the place.

One farmer at Margate fed to his cattle everything he grew, and though he had to borrow money the first year and pay interest, in 15 years he owned a valuable farm and had a comfortable sum in the bank. That farmer's son thought there was nothing like agriculture. This farmer had induced his neighbor to follow his good example. What he had done could be made very much more valuable to the community if his methods and figures were made public every year. Mr. Ross thinks the payment of a bonus to such men as this to induce them to publish their methods and figures would be a good policy and practice.

Agriculture in Prince of Wales College.

In Prince of Wales College Mr. Ross teaches what he calls Nature Study Agriculture—the habits of plants, nature of soils, etc.—to all pupils except those of the third year, who get botany but not agriculture. Only one per cent of the pupils had grown plants under observation before entering the College, hence much time is spent in elementary work, such as identifying common weeds and plants, which is as much a waste of time as if a class supposed to be reading Greek should spend half their time learning the alphabet.

Up till 1911 botany, agriculture and physiology (scientific temperance) were all included in one paper for College entrance, each subject being allotted one-third of the marks; and as only 40 marks were necessary for entrance, students could thus be admitted who were ignorant of the first elements of botany. The language subjects—Latin, French and English—had always been allotted 100 marks each. In 1912 botany and agriculture formed two separate papers, each carrying 100 marks. The mark system is arranged by the Board of Education—practically the Principal of the College and the Superintendent of Education.

First-year students are not assumed to have any knowledge of botany other than names of different members of the flowers, and the work is almost wholly observation work. Of 100 marks, 25 are given for class work and exercises during term, and 75 for final examination at Christmas. The minimum of termin-

ology is taught the first year; students are expected to get this in their second year; then in the third the development of plant life is taken up beginning with the single cell, and some microscopic work is done.

Agriculture Taught from Books.

Agriculture is taught in the College after Christmas very largely from books. There is a small greenhouse in connection with the Botany room, but it is impossible to teach practical work to classes numbering from 50 to 70. Practical class agriculture cannot be taught.

The course for the first year consists in identifying weed seeds and judging grain, and lectures are given on soils and fertilisers; students are expected to become familiar with the law relating to seeds, weeds, and fruit marks. In the second year bulletins on live stock are read and discussed, so that the students may know where various subjects can be found, in the hope that they will interest themselves in Farmers' Institutes and thus help to popularise these bulletins among the farmers. Lectures are also given in physiology, dealing largely with scientific temperance.

After Christmas physical geography has two or three hours weekly as a basis for lectures on agriculture, when the formation of soils is gone into somewhat fully.

All this work is done by lectures, the benefit of which Mr. Ross can hardly see, as agriculture must be made practical to be of advantage, and this cannot be done without equipment in winter. Even the study of bulletins is not of much use to young men and women who do not expect to employ themselves in agriculture, but are planning to become lawyers, doctors and theologians; and it cannot be expected to be taught with thoroughness when such a small percentage of the marks necessary for the diploma are given in this subject.

Why School Gardens are Few.

The best way to increase the interest of the children in farm life is through the school garden. The people want school gardens and Nature Study, but the problem is to work out a good scheme for it, and to train teachers. Without a school garden in connection with the Prince of Wales College teachers cannot be trained; but the long break in the College session from May till about the middle of September, with a large portion of May taken up with examinations, makes it impossible for students to give much attention to the school garden at the College. Then when College resumes in the fall, the large plants used for beginners' work have gone to seed. Mr. Ross suggests that the College term be lengthened, so as to give better opportunity for school garden work.

Mr. Ross knew of only 5 school gardens in actual operation on the Island, the reason for so few being that this work does not lead teachers to advancement or higher salaries. Trustees look first to the number of students passed into the Prince of Wales College, and on this the teachers' advancement depends. One teacher who had a school garden dropped the work for lack of recognition either in College entrance or the Report of the Superintendent of Education.

While teachers for the most part are favorable to the school garden, a man getting $325 salary cannot more than live on it, and it is useless to appeal to him to look at the interests of the children rather than his own advancement. Payments or recognition of school garden work would help it. Vacation is a serious obstacle to the school garden, though in some places the people insist upon the pupils keeping it up because they want them to learn the habits of tidiness, good manners and making their homes better, even though they do not pass into College. In one neighbourhood the children walked long distances during vacation and kept the school garden in splendid order; and not only was the garden itself a great success, but the school had better standing than before in the entrance examination.

But the teacher problem remains, and the task is all the harder where teachers are making their school work a stepping stone to another profession. Before this matter could be taken hold of, the entire spirit of education in the Province would have to be modified towards helping the Island population rather than simply leading a few to the University.

SECTION 2: SUMMARY OF POINTS PRESENTED IN TESTIMONY.

The Island's Varied Productions.

Prince Edward Island is a beautiful agricultural country, its chief products being grain, potatoes, live stock, butter, cheese, pork, bacon, eggs, etc. Farming has improved during the last 15 years; weeds are being repressed, seed is cleaner (due partly to competitions), and farming is becoming more productive. Chickweed and Canada thistle are the most troublesome weeds; alfalfa has not generally been proved a success. Potatoes grow well, but higher prices are needed; dairying has greatly improved; rotation of crops (4 and 7 years) is followed by some farmers. Farmers are waking up. Occasionally there are deserted farms, but not many are vacated, Island farm values having gone up considerably within the last few years.

Progress is shown by the increase of exports to the Old Country. Enquiries come to the Island for seed potatoes from Alberta, Saskatchewan, and even British Columbia. With good climatic conditions during harvest, the Island produces probably the best grain in the world for seed purposes, according to one witness, who stated that he had shipped 200,000 bushels of oats to the North West last year, in competition with Scotch Oats. The Seed Commissioner at Ottawa reported that the Island oats were the best, though they had not been specially selected for seed grain, but had been gathered from all over the country and shipped in the middle of winter.

The Island produces the best class of everything on account of climatic conditions, humidity of atmosphere, the nature of the soil and the fact that the whole province is under-drained naturally by the porous subsoil.

One witness considered the Island the greatest horse country in Canada, and probably in America, north of Kentucky; and prices are higher than in New

Brunswick and Nova Scotia. If twice as many horses were produced the market would be still better.

Educating for the Farm.

Hon. John Richards, who had charge of the Department of Agriculture at the time of the Commission's visit, said that school children should learn more about farm matters, and teachers should be trained more in regard to school gardens, of which there are very few now; but he added that it takes a good while for the people to accept a new movement in education.

Mr. Artemas Clark, Superintendent of the Dominion Experimental Farm, was brought up on an Island farm, and after passing through Prince of Wales College, graduated at the Agricultural College at Guelph and also at Cornell University. He has had wide experience as a workman on a farm as well as in investigations at the University and in the Seed Division at Ottawa. He testified that he had got more out of his College Course on account of doing actual farm work before he went, because he was thus interested in the work done in College. He claimed that children who take care of school gardens would get more out of their agricultural botany and chemistry, and the school garden could also be of great assistance to teachers. It helped them to describe and explain, and the children understood better by seeing the actual things.

Educating off the Farm.

The President of one of the Farmer's Institutes said that the general verdict of thinking men was that the Islanders have been educating their boys and girls off the farm by holding up teachers and college professors as ideals of successful men; hence children are not satisfied unless they learn a lot of Latin and get away up in classical education, and then go out in the world and make a mark for themselves at the uppermost rung of the ladder. He claimed that the man with an agricultural education would make a better farmer than an ignorant man, for by applying his mind to the farm he would see things that the common man could not see, and would draw out what the other man could not find at all; but when the Province is poor and cannot pay for everything, he thought they should come down to essentials and pay for the things on which their very existence as a Province and a nation depended. He thought that all would admit that the community was not rich enough to give much money for high agricultural education for boys and girls—three years Latin free—and that teaching the theory of agriculture to teachers without an experiment or without the things that go with them would never amount to anything.

Nature Study at an Early Age.

He considered it absolutely necessary to begin the teaching of Nature Study in early childhood. Many farmers who have never been taught to observe will drive along the road and pass their own fields and not notice weeds that have never appeared there before. Such men could not tell a turnip seed from a weed

seed, whereas a boy who took charge of a school garden would be taught to take notice of things and distinguish them carefully. The men responsible for education on the Island had treated that subject as though anybody could learn sufficient in a few short lessons to be able to teach it to children. If children under a good teacher got a proper idea of Nature Study in early years, they would be ready for a far more thorough course when they went to Prince of Wales College, and if Nature Study were well taught in the common schools of the Island, there would be fewer going to that College and more staying on the farm. It would be well worth while to make a great effort now with those first teachers, so as to get the foundation laid. A first class teacher of Nature Study in the College should act as Supervisor of school gardens during vacations, which would be an immense benefit. Children have not been interested as much in the school garden as in other studies, because teachers change annually, and the effort is intermittent.

Teachers Should be Better Paid.

One witness thought children aged 6 should get Nature Study right out on the school grounds instead of being within four walls with older children all day. The question of future teachers is a great problem, and it would be a fine thing for the children if teachers could be got who love rural life. The remedy for changing teachers is to give them plenty of money and make teaching as good a business as there is, and they will stay in it. It is not poverty but apathy that keeps people from paying teachers good salaries; they are as well satisfied as ever they were with the schooling that children get. The population is so changing that a large percentage of ratepayers have no children, and thus the district suffers, for such people do not care very much, and it is hard to get the necessary votes. People could certainly afford more money for schools if they were willing. The problem of raising interest in schools is a difficult one.

Hostility to Cost of Schools.

One witness stated that there was a spirit of antagonism against the schools in the country. People were going to the annual meeting with that spirit to vote down the "supplement" to the teacher's salary, and vote down everything, the reason being that they did not want to spend the money. The love of money and of acquiring wealth is thus strangling the Island schools; and this spirit, together with indifference, makes the work very difficult. In education and other matters the population is facing a grave state of affairs, for while the people need education there is a lack of public spirit. If the press and pulpit and every educational influence would do its duty, that would be overcome. If the farmer saw that the school helped his boy to make money he would be interested enough to pay more for the school. People would stay on the farm if it pays better than anything else, but not otherwise.

A Farmer's Experience at College.

One farmer who had attended Prince of Wales College for two years said there was no nature study, very little agriculture, and little botany; the most important

subjects were Latin, Greek, French, etc. He thought that Latin did him some good, but that his time could have been better spent. It would have done him good at nine years of age to have learned of the caterpillar becoming a butterfly, how oats grew, etc. He believed there would not be a good system of education on the Island without consolidated schools. The opposition to consolidation is because of the expense; but even if the cost were double that of the ordinary schools, it would not hurt the farmer, for this Province does not pay as much per head for education as do other Provinces, and the Island schools cannot uphold their reputation unless they pay more for teachers. Probably a third of the local taxes go for education. The people need waking up. The teachers in non-graded country schools now take all subjects from primary up to matriculation for Prince of Wales College, hence they cannot do justice to every class.

The school garden at Tryon was referred to as a very beautiful spot, and the effect on the scholars was good. One witness had seen those young fellows at seed meetings, and they seemed to have very much better knowledge of the different seeds than their fathers.

Three Demonstration Farms and Gardens.

The school system of the Island, in the opinion of another farmer, was a very good one to educate people away from the farm, and Prince of Wales College proved to be the gateway out of the country for the best educated men of the Province. While the school garden would be a good thing, with a competent man in charge, the present teachers are not competent to give training in nature study, school gardens and agriculture. It would be well to keep a school garden at a demonstration farm. Three such farms at $200 each, and 3 such gardens at $100, would soon return the expense, and they also would be popular on the Island, for the farmers are waking up and do not object to expenditure for agriculture; but a different ideal must be set before the young people in the school.

Training People to Leave the Island.

The country school teacher is measured not by what he will leave on the farm, but by the number of pupils who pass into Prince of Wales College to go away from the Island. Very often a boy who stays on the farm has to assume a mortgage in order to pay for the education of others of the family who go through the College. Farmers would not object to pay teachers more if they were competent to keep school gardens and help agriculture, and this makes the farmer's work more effective. Many teachers now engage with schools because they afford a good deal of spare time and opportunity to study for something else. Teachers talk about the successful Islander abroad and speak of him as having been trained at Prince of Wales College, etc., but say nothing about the man who stays at home, though he is the one the Province is interested in.

Special Teachers.

With a view to helping pupils to stay on the Island one witness suggested that the Government should contract with some well-equipped teachers for a

number of years and send them to Macdonald College for further training. Another said that all boys should go to the Agricultural College, and that farmers should spend as much on the education of their boys who intend staying on the farm as on those who are to be lawyers or doctors or clergymen, for the farmer requires more knowledge than the professional man. What was needed was to have enthusiasm awakened in the boys, to make the parents realize that they must spend money if they wish to make the farm a success, and their boys to earn such money as lawyers and doctors and other professional people make. Farmers should talk a good deal about the nobility of farming, try to put enthusiasm and love for the Province into the children and teachers, then have a first class professor of nature study who will teach it in an interesting and practical way to the teachers, who, in their turn, can make it interesting for the pupils in school. In this way children would be drawn nearer to nature and to the land, and would learn to love old Mother Earth and appreciate what she is doing for them.

One witness questioned the benefit to teachers from attending the Summer School of Science for one Session, as their knowledge would not extend to the farmers. An Agricultural Summer School for even a week, where farmers could take a short course, would be of some benefit.

Value of Agricultural College at Truro, N.S.

The Island Government gives $10 towards scholarships to assist farmers and their sons to attend the short course at Truro (N.S.) Agricultural College, and the Nova Scotia Government usually accepts Island students without fees. Nothing gives better results, the course being highly appreciated, giving farmers great interest in their work and making them all anxious to go back. The ages of those who attend run from 18 to 50. The older men regret the lack of opportunity to attend when younger, hence they would gladly use opportunities for young people even nearer than Truro, though that place is convenient, with good travelling facilities. The work at Truro was highly commended, the good influence of Principal Cumming being specially mentioned. "There is an inspiration in meeting fellows from other Provinces there, and being put on Committees with them for live stock and seeds." The Provincial Government ought to countenance Truro Agricultural College more, one witness said; they ought not to be so saving in the use of money, for there is no way to spend money to such use for the Island as by helping the young men to go to Truro, as each of them becomes a centre of influence in his locality.

One farmer told of his boy having gone to Truro and since returning home he had put in practice a good deal of the knowledge he got there, with excellent results. The College was a great help in making him think that way. What the father said did not seem to have the same weight with the boy as if someone else said it, hence the parents' task was made much easier.

One witness did not favor teaching sewing and domestic science except in large towns and high schools, because of lack of time and the need for aiding nature study.

A good deal of the success of farming, in the opinion of another witness, depends on the work done at home by the women—cooking, washing, sewing; and he thought a girl gets better training in those things in the country than in the city.

Farmers' Institutes—How to Improve Them.

Farmers' Institutes meet regularly in winter and frequently in summer, and farmers do some business through them, such as buying improved stock, seeds, etc. The opinion was generally expressed that Institute work might be improved by a Provincial Central Organization which would plan a course for the year and make the work of Institutes more definite. The Superintendent of the Central Institute might visit schools and talk farming to the boys and girls.

Highly trained and practical men to address Farmers' Institute Meetings would be valuable, as at present farmers just "talk among themselves." The Farmers' Institute system which was established nine years ago has brought about improvement in seed, stimulated farmers to work more scientifically, and, though very conservative, they are gradually getting out of the old rut with marked effect.

While one witness thought the school garden a good idea, one of the most pressing things, in his opinion, was to get the best possible education for the working force of farmers that are past school age. Great benefit had come from what the Dominion and Local Governments had done along those lines, and he could see quite a difference since the work of the Superintendent of Institutes had been carried on, but more help was needed.

Seed Selection, Weed Destruction and Dairying.

Farmers are paying more attention to seed selection. Seed fairs, grain competitions and standing grain field competitions, assisted by prizes from the Department, are encouraging better seed and more careful preparation of soil, resulting in better crops than formerly.

Efforts are made to suppress weeds, but much remains to be done. Some farmers take pains and treat their seed with formalin to keep the smut down.

Farmers are welcomed at the Experimental Farm.

The class of farmers who need to be reached and educated would not go to the Government Farm, one witness thought, or if they did, they would remark, "They do not have to make this thing pay." A farmer running an Illustration Farm might be helped by two other practical men visiting his place two or three times a year, and talking over his business, but he would have to follow his own methods, as he would have to make the business pay.

A farmer near Charlottetown said there had been an experimental plot in his orchard, but very few people came to see it, hence it did not look as though people took an interest that way.

Another suggested that a farmer might send his boy to a neighbor or to some good farm in the country for a week or fortnight if the farmer was able to give him work, and he might thus learn this man's methods, compare them with his own, and adopt them if better. What farmers need is co-operation, talking and comparing notes, and centralization, especially in Institute work.

Another said that a short course on an Illustration Farm during summer time would be a good idea, and that farmers would be interested in seeing better crops and live stock than they have.

One farmer suggested taking an ordinary farm having ordinary dairy stock, and getting the farmer to improve that stock by selection. The progress thus made would prove a great lesson in stock improvement, more than by beginning with pure-bred stock.

The cheese business got its development from having technically trained educated men in charge. The object-lessons given in co-operative dairying could be extended to the development of general agriculture.

Dairying has been a good thing for the Island, the output of butter and cheese from the factories in 1909 having been $600,000. It is the best line of farming ever adopted there to maintain soil fertility, which one witness thought had been improved, adding that the land in the sections that have gone heaviest into dairying is the most fertile to-day. It also enables the farmer to take more profit out of the same number of acres than other lines of farming. Better cows and better care of milk will make dairying so profitable that other advantages will follow, and the farmer will take it up. The herd test improves the quality of the cows, but closer supervision of dairying by competent men is necessary to secure better care of milk.

Dominion Government's Help.

Without dairy instructors the dairying business would not be where it is to-day. From 1892 until 1896 the Federal Government, through its Department of Agriculture, carried on the cheese factories and creameries for the farmers. No objection was ever heard about interference with Provincial rights; on the contrary, the people wanted all such interference they could get. The Dominion's help to an industry did not in any way interfere with the management and control of the system of Education in a Province, but rather added to its efficiency.

One witness impressed on the Commission the necessity of further support to education in dairying through the Dairymen's Association. The present dairying instructor is supported from three sources—the Dairying Department at Ottawa giving $300, the Local Government $300, the balance, which is half the total cost, being taxed on the factories. This is the only industry witness knew that is taxing itself to maintain educational work, and they found it to pay. What the factories want is a proper man, not under control or influence of a local section, coming in from outside, independently, to correct or really prohibit what is wrong.

Profit in Dairying.

One witness, who has specialized in dairying for 10 years, said he was making more money every year, and did not expect soon to reach the limit, as there was plenty of room for progress. Any improvement on his land was so much to the good. He had 80 acres cleared, average soil, kept 10 or 12 cows, and catered to a fancy butter trade, average yield 200 to 225 lbs. of butter per cow, besides keep of his house and raising calves. Skim milk was fed to calves and hogs. He sells

about 15 hogs at $20 per piece, bringing $300, and occasionally he sells a horse. When he started he was not as strong as many other men, and was $1100 in debt. Any man in the settlement could have been in a better position to-day than the witness, who 20 years ago got a farm that had been cropped and the produce sold off until it was run out. He said he could have made faster progress if, when he was a boy at school, he had learned how oats grow, how weeds propagate themselves, the names of diseases that attack plants, what milk is, relation of cream to milk, the physics of the thermometer and windmill and pump, sanitation and wholesome conditions, etc.—things he had to learn in order to be successful. If the schools were made so that the children would learn all those things, it would make all the farms in the vicinity worth more. He added that not many farmers on the Island followed the same line as himself unless they happened to be distant from a cheese factory. He sold most of his produce in Halifax, and generally got for his butter 3c. or 4c. per lb. more than the ordinary rate, for he had good cows, put up a choice article, and manufactured it in the best way. The fear of competition did not disturb him.

NEW BRUNSWICK.

CHAPTER XII: OUTLINE OF THE EDUCATIONAL SYSTEM.

SECTION 1: ORGANIZATION AND ADMINISTRATION.

The Public Education of the Province is controlled by the Board of Education composed of the Lieutenant Governor, members of the executive Council, the Chancellor of the University of New Brunswick, and the Chief Superintendent of Education. This Board provides the Normal and Model Schools for the training of teachers, appoints school inspectors, divides the Province into school districts and generally provides for an efficient system of education. The Chief Superintendent has the direction of inspectors; enforces the school act and regulations; apportions the County School Fund; offers suggestions on educational subjects and generally supervises education in the Province.

How Financed.

The Public Schools are under the control of the Provincial Board and are supported from three sources—Provincial grants, County Funds, and direct assessment.

The Provincial aid is given in various ways, superior school teachers receiving from $250 to $275 annually, providing the school trustees pay no less; Grammar School teachers receiving the same amount as from the District Trustees; Manual Training and High School teachers receiving from $50 to $200 annually from Government funds; Consolidated Schools receiving for three years after establishment special grants, determined by the number of districts in the consolidation and the average number of pupils attending the school, also half the cost of conveying children to and from the school. The Legislature also votes $1000 annually to help poor districts to repair their district schools or build new ones. There are also grants to school gardens.

The County Fund is a direct tax included in the county assessment and provides 30c. per head of county population. Trustees of each school district receive from this fund $30 or in poor districts $40 per year for each licensed teacher in charge of a department of a school, the balance of this fund being apportioned among the schools of the county in proportion to the attendance of pupils in each school, as compared with that for the schools of the county, provision being made or paying $100 per annum for each New Brunswick pupil attending the schools for the blind and deaf.

The District Assessment represents any balance required for school support, not provided by either of above funds, and is made by direct tax on ratepayers of the local school district, where the school is situated. Each male resident between the ages of 21 and 60 years of age must pay a poll tax of $1 and the balance of the district assessment is levied by an equal rate on assessed property and income of the district. In cities and towns money required for schools over and above the Government and County Fund grants is voted by the city and town council, and collected with the other taxes.

The sum of $196,957 was expended in Government grants in 1912, the total Provincial Revenue being only about $1,000,000. There are 1906 schools and 2012 teachers with 63,073 pupils, the percentage of attendance being 68.33.

Grades and Attendance.

Pupils are graded in country schools in five grades, which correspond to the 8 grades in town schools, grade 5 roughly corresponding to grade 8 of the city schools. On completion of grade 8 the pupil enters the High School after examination. The number who go from High School to University is small.

There is a compulsory attendance law, but it is optional with localities and in country districts it is not generally enforced, though adopted at school meetings. In St. John there is a truant officer and results are regarded as most satisfactory and effective. Moncton has appointed a truant officer with most beneficial results, the percentage of attendance having been raised from 82.78 to 86.41, and the Chief of Police in that city reports a marked decrease in juvenile crime and petty depredations, due largely to the good effect of this law.

SECTION 2: INFORMATION FROM Dr. W. S. CARTER, CHIEF SUPERINTENDENT OF EDUCATION.

Under-Work as a Menace.

New Brunswick has not gone as far as Nova Scotia and Ontario in High School education because unable to afford it, and Superintendent Carter did not think the High Schools of as high a degree of excellence relatively as the Public Schools. He would like to see more consolidation in country schools. The town schools have a very good chance, but there is constant pressure being brought to add to the courses of instruction and equal pressure to diminish the time in which the same may be imparted to the children; some unreasonable people think children should have no legal holidays, while others complain of over-pressure in the schools. The Superintendent believes there is under-pressure, on account of the present tendency to get along easily, to get something for nothing, and that this would have to be combatted. He did not think the work in this country

compared at all in intensity with what the German children do in the schools, and he thought we should develop more self-reliance and a little of the gospel of work instead of speaking of over-pressure. It is impossible to add to, or even carry out, present courses if it is decided that there are to be no home lessons, with holidays on the slightest provocation and school hours shortened.

High School Courses.

One High School is allowed for each County, of which there are 15, but in one case two counties join, so that there are 14 High Schools which are quite successful and doing good work. The number of teachers is regulated by the number of pupils pursuing a certain course. In St. John there will be 10 or 12, in Moncton 5 or 6 and Fredericton 3 or 4. Classics are optional in all schools and there is plenty for a boy to take besides classics, and in many schools these are not taken at all. In St. John there is a kind of pressure brought on boys to take classics and in a school where these are taught a boy who does not take them is to a certain extent left to his own resources. With present accommodation the schools cannot depart too much from the curriculum, but the Superintendent would have at least a Classical and Modern Course in every High School, letting the latter consist of a Commercial or Industrial Course, though only two or three towns in the Province would add to their staff, so as to have the Industrial Course. Commercial education has not been put on the curriculum, because of the lack of demand from local School Boards. No doubt the Commercial would come in St. John immediately, and the Industrial when somebody finds some money, St. John being pretty heavily taxed now, the tax being $2.00 on the $100 for full valuation for general taxes for all purposes.

Change of Vacation.

The Superintendent would not favor Spring and Fall vacations when roads were bad, and keeping schools in session during the Summer, because in country districts boys are useful in haying, harvesting, berrying, etc., and in the towns the small percentage who go to the country have the largest voice in the community, and would like three months' Summer holidays, and it is very hard to resist the pressure they bring to increase the vacation.

Larger School Districts.

The great evil in the Province is inequality of assessment, some districts paying as low as 12c. while others contribute as high as $2.00 per $100. The Superintendent favors the parish area instead of the school district as an area for administration; this would help consolidation by removing local prejudices. The School Board would be for each parish, and would locate the schools where they would be to the best advantage, and the rich would help to educate the poor. The former Superintendent suggested that the County rate should be increased from 30c. to 50c. or 60c. per head. If this were done there would be $100,000 additional from that quarter, which would be of very great advantage.

Occupations and Rates.

The three great material interests of the Province are agriculture, lumbering, and fishing. Agricultural demands on education are the greatest, and will increase rapidly. Lumbering will probably increase for some time. Fishing is not so general, but it is capable of great development. Mining interests are not great, although they have some very good prospects.

If public opinion were right, the Legislature would take up the question of technical education from the County School Fund; but even though some men would benefit greatly, the poorer tax-payers object to having the County Fund raised, looking to the increase of the tax and not to the returns they will get. The Superintendent thought there would be opposition to the parish sub-division for taxation, as each little district would want its autonomy, and this had prevented consolidation in many places. The Superintendent would like no district to contribute less than 50c. on the $100 for schools.

Hand and Eye Training.

The grades in which Manual Training and Domestic Science were taken up vary according to the Principal. In St. John they had not enough to go all round, so they began there at Grade 5, and some High School pupils took a little. The Department would prefer it to be taken in Grades 5 to 8 if possible. Manual Training, Domestic Science and School Garden work are all given to a small extent in connection with the Public School, but much less than the Department wishes, and there are no Night Schools as Public Schools. Manual Training is given at the Normal School. It is not at all a hindrance to boys in their other work, if directed by a careful teacher. It develops general intelligence and helps in all subjects, but want of money and lack of room in the average country district have prevented its extension. School-rooms are usually taxed to fullest capacity, and it is difficult to introduce work-benches. There is not as much advance in Domestic Science as Manual Training, the Province depending on institutions outside for training teachers in that line. There is no branch of Domestic Science in the Normal School yet, but it is hoped to have it; Manual Training is given there, however. There is a feeling in favor of Domestic Science, perhaps stronger than for Manual Training, because it brings direct results. While Manual Training gives a boy a bent and valuable training, Domestic Science may be used directly in the household and its immediate utility is apparent to all. It has equal educational value with Manual Training.

Agricultural Instruction.

Slow progress is being made in Nature Study and School Garden work, which are a good deal hindered by lack of facilities for training teachers and lack of grounds in many cases, these having been selected without reference to school gardens, and many being rough and barren. Then the teaching of elementary agriculture has been a failure, chiefly because it has been all theory, and very

little practice; again, during the two months when the best object lessons in school-gardening could be given, both teachers and pupils are scattered. A great deal of attention is being given by the Agricultural Department to the teaching of agriculture in the schools, and the latter are doing what they can to give this prominence. The more intelligent of the farmers regard the school garden very favorably, and all are in favor of attention being given to agriculture in Public Schools, though their ideas are indefinite as to how this should be done. If a school garden is badly conducted, the farming population would simply deride it, and it would be a bad influence in that locality. Hence the Superintendent thinks it better to have none rather than a poor one at the beginning, yet the children will get lessons even from a poor school garden which will be totally absent from the books. Inspector Steeves prepared a little pamphlet on Nature Study and Agriculture, with the object of developing power of observation by pupils on their way back and forth from school, noting weather conditions, weeds and their remedies, and all those things that may be done largely on the roadside, even where there are no school gardens. No apparatus is required for teaching this manual, except such as may be made at home. There is no Chemistry in the lower grades, though the Superintendent would favor having entirely Agricultural Chemistry. There is a school garden in connection with the Normal School to which a small share of time is given in connection with other subjects. Nature Study develops the intelligence; so should arithmetic, but there is a good deal in school of a routine character that does not appeal to the intelligence to the same extent as where hand and eye and brain work together. Normal students are all given the same training, and teachers emerge. If they could afford it, their best plan would be to get training in Nature Study and School Garden work in a Consolidated School or High School, but those who cannot afford it have to depend on a country school. The Superintendent thought it would be worth while to make a great effort for five years to have School Garden work done experimentally, and it would be of great value not only to teachers but to farmers' sons and daughters. If the teaching of Nature Study and School Garden work was general in Public Schools, the Normal School would be relieved.

Handwork of Value to All.

In Consolidated Schools, without exception, Manual Training, Domestic Science and Nature Study all receive attention, and their pupils do as well at examinations as those from other schools. Those subjects do not count directly on the examinations, but the Superintendent thinks that indirectly they do, as the teachers keep in view the passing of pupils in examinations. Fitness to go on to some advanced department is mostly the test, and the course of study is adjusted to that end. The curriculum is largely, but not exclusively, based on the requirements of the University. He thought that possibly, the one direct aim of education in New Brunswick was towards the University or preparing for College, hence he had always favored commercial education, especially in the cities, so that a man in business would have as good a right to prepare his boy for his particular business as a professional man would. In the opinion of the Super

intendent, Manual Training, Domestic Science and Nature Study would be of equal value to those leaving school at the 5th or 6th grade as to those who go on with advanced work in the University, if the Province could afford to provide it. Something is needed to keep the boys at school, as they are now falling out for want of stimulus and of interest on the part of the teacher, and the introduction of these subjects would be the means of retaining them. At present the girls are getting the bulk of the education.

Question of Home Work.

As to home work, the Superintendent thought a little more should be done. Children of 7 have no home work. Older pupils do not all do the same amount of home work. If a boy can get up the work prescribed in his grade and pass examinations without working at home, it is nobody's affair. The trouble is with those who do not know enough and fail to grade. A parent will ask that the child have plenty of holidays and no home work, then complain grievously that he does not grade. With 50 children to a teacher and conditions as they now are, one child cannot be much more advanced than another, although they may acquire home lessons with much greater ease than the other. With a smaller number of pupils the teacher could study the individuality of each.

Consolidated High Schools.

If Consolidated High Schools were established in the country, they would relieve the situation where located, and if numerous enough would cover the whole ground. The present tendency is for students to seek the nearest superior or High Consolidated School, but a good many cannot afford to do so. They are among the brightest pupils, and after getting a second class certificate work up to a first class. Consolidated Schools are difficult to carry on in this Province, because of their greater cost and because the average rural rate-payer looks at the money rather than the advantages, but sentiment is advancing and wherever tried in the Province, the Consolidated School has not gone back.

Evening Schools.

The Superintendent thinks Evening Schools will be very successful if entirely changed in character, so that pupils would have something to do with their hands as well as their heads. A Government grant is given wherever any local School Board wishes to conduct Evening Schools. Some spasmodic efforts have been made in St. John and one or two other towns in this direction, but in the opinion of the Superintendent failure was largely due to the fact that day school teachers taught them. He strongly holds that this is a mistake, as day teachers are not in a fit condition.

Vocational Farm Schools.

All trade schools would be useful, the Superintendent thinks, but the great difficulty would be to know what to introduce first. In most instances he thought they would be better started from the Public School. His plan would be for the

Government to rent small farms in two or three places in every county in connection with the High School or Superior School and put men on them permanently, giving boys and girls opportunity to work there from time to time for two or three years. These would serve not only as object lessons to the surrounding country, but as direct mediums of instruction, and boys and girls might come back during holidays and work upon them perhaps for a small reward; at all events, there would be always someone there to look after them. That is the only way, in the Superintendent's opinion, to successfully introduce agricultural instruction. The plan would necessarily be costly, but something of that kind is being done in Australia and Japan.

He would not like to say whether the attendance at those county farm schools should be compulsory for teachers-in-training, but he thought the latter should be willing to make some sacrifice, and as it was desirable for teachers to get those short courses, it would be good policy to make them compulsory, if there were no hardships in the way of expense. In connection with those suggested farm schools there might be a Summer School of Science, but this is largely a matter of ways and means as revenue was limited; and meantime teachers from the Province attended the present Interprovincial Summer School of Science.

SECTION 3: AS TO TRAINING OF TEACHERS.

At the Normal School in Fredericton the enrolment in recent years has been increasing, the numbers being 340, 345, 366, and 374, yet the accommodation in the building is what it was 30 years ago with less than half the present number of students. The building is now entirely inadequate for properly carrying on the work, having no laboratory, no gymnasium, no room for physical drill, which has to be given in halls and corridors without proper ventilation, and no proper accommodation for the Manual Training Department. Plans were prepared in 1910 for an extension to accommodate Model Schools, Manual Training Department, and also a room for Physical Training and Gymnasium which could be used as required for farmers' meetings or agricultural work.

Improvement in average scholarship enables the teacher-in-training to devote more time to the purely professional side of the work and because the Normal School has been able to develop more definite methods and ideals among the young teachers, the latter are teaching the subjects in the lower grades of the schools better than ever before.

School Gardening at Normal School.

The school garden has been maintained in connection with the Normal School, the work of preparation and seeding being done by the students, as well as considerable improvement in the school grounds having been made under the direction of Dr. Hamilton. The garden is not pretentious but serves to show the students what might be done with a School Garden as an adjunct to a small country school.

Licenses to Teach.

The law requires Normal School training of all teachers in New Brunswick, and it is observed by Trustees; though there may be a few local licenses, there should be none at all and 20 years ago there were not. The full course of attendance at the Normal is one year, but temporary licenses of the 3rd class require attendance only from September 1st to Christmas vacation, such teachers having opportunity for promotion into another course, and perhaps 30% have been so promoted during the past four years, the majority obtaining 1st class licenses. About 50% take second class licenses, teaching for a term, then returning the following year or later on to complete their full course. University and College Graduates are allowed to write on examinations for teachers' licenses without attending the Normal School.

Scholastic and Professional Work.

An effort is being made to relieve the Normal School of scholastic work, and have it purely a school of method, but this has not been done thus far, as a great number of schools are not equipped to give the scholastic training.

Part of the work in the Normal School is to give scholastic instruction, which would not be necessary if all the students came from High Schools, but the larger proportion of teachers-in-training come from country districts and not from towns and High Schools, and could not get the necessary training in their country districts while living at home. The year at the Normal which is necessary for a first class certificate is not regarded as full training, but is the best the Province can do. The Superintendent considers that not more than six months time is given to scholastic work in the Normal, that as much is got out of the courses as is done in the West, and that the duplication of High School work there is not serious because of the plan of issuing 4 grades of licenses, the great bulk of pupils from country districts not being able in their first attendance at Normal to undertake more than 3rd class license work.

Hand and Eye Training and Nature Study.

Principal Bridges would like to see Domestic Science introduced into the Normal School, as it would make teachers more efficient in both country and town schools, but lack of means, opportunity, accommodation and equipment had prevented its introduction. He could make some arrangement as to time for this subject, but it might not be entirely satisfactory, the term being so short. On the whole, he thought that it would be to the students' advantage to give up something for the sake of taking Domestic Science, and that it would be a good thing to have all the teachers-in-training get it. Nature Study and School Garden work are not now on the course in the Normal School, though the students had looked after the school garden, had taken an interest in it, and were very fond of it, and it was a practical one they had learned something from it.

If Manual Training, Domestic Science and Nature Study became more general in the common schools, so that pupils coming from them to the Normal would

have had some of each of these subjects in their school days, Principal Bridges thought more advanced work could be given in the Normal so that these students would be still better able to teach those subjects efficiently. At present the work done in those subjects must be elementary because of lack of training in the students before coming to the Normal. If the teacher of a district school is herself experienced in those subjects in her own school days, she can teach them.

Of the 265 students who have already applied for entrance this year, about 50 have passed matriculation examinations for the University course—about 100 from Superior Schools and the balance from ordinary district schools of 5 grades. Matriculants enter in what is called first class license. Those from Superior Schools have reached 10th grade work, which is one year below matriculation, and have had more school gardening than matriculants.

Of the total number of teachers in attendance (about 370) at the Normal School, 30 are men; the previous year the number of males was 60, the largest number the Normal has had.

When the additions are made to the building, the Normal School will be well adapted for courses in a Summer School. Teachers' Institutes are held in each County once a year, generally in the Autumn, some few in May or June, and these would afford good opportunities to supplement the instruction given on a farm.

SECTION 4: AS TO HAND AND EYE TRAINING.

The School Acts, Section 123, provides:—

(*a*) A Provincial grant of half of the total amount expended for necessary benches, tools, material and other equipment required for instruction in Manual Training to any Board of School Trustees, whether in city or rural schools;

(*b*) To any licensed teacher, who obtains from any Manual Training School approved by the Board of Education a certificate of fitness to teach the system, and who gives instruction in Manual Training in addition to the regular work of the school, a grant of Fifty Dollars per annum in addition to the Provincial Grant;

(*c*) To any certified teacher who gives his full time to instruction in Manual Training in the schools of a city, town or other populous district under the direction of the local School Board, the sum of Two Hundred Dollars per annum;

(*d*) To the New Brunswick teachers, who take Manual Training Courses at any school approved by the Board of Education and who afterwards actually teach the system in any New Brunswick school, Twenty-four Dollars for travelling expenses;

(*e*) To the duly licensed teachers who qualify for teaching nature lessons in connection with a School Garden, either at Macdonald Institute, Guelph, or any other institution approved by the Board of Education, and thereafter give instruction in said subjects in any public school having a school garden attached, a grant of Thirty Dollars per annum;

(*f*) To the Trustees of school districts, which provide and maintain school gardens in connection with the several schools, the sum of Twenty Dollars per

annum to assist them in caring for such garden and improving and keeping in proper condition the School grounds;

(g) To such teachers as may, after nomination by the Board of Education, pursue a course of 3 months in Nature Study and School Gardening at the Macdonald Institute, Guelph, for the purpose of qualifying themselves to give instructions in these subjects in the public schools, Scholarships of the value of Fifty Dollars each in the case of female teachers and of Seventy-five Dollars each in the case of male teachers; not more than twenty-four such scholarships to be given in any one year.

During the last quarter of 1911, there were 18 Manual Training Departments, 17 school woodworking shops, 8 in rural and 4 in consolidated schools, the work being taken by all boys from grade 6 upwards. This condition also obtains in 5 city and town schools. Four of the 8 rural schools have been closed, one because the village was burned down, another because a teacher could not be had to go to the remote village; another teacher got married and no one else would go; and in the 4th the population dwindled. The other four were quite successful. Some bench work is done by teachers who take it for an hour each afternoon after dismissing the small children. An equipment as low as three benches is recognized. Town and rural schools are treated in the same way as to grants, the Government paying half the cost of equipment and half the initial cost of materials, with teachers' grants additional—$50 to rural teachers who give Manual Training as an extra, and $200 to town teachers who devote their whole time.

Elementary Handwork.

Systematic elementary handwork is carried on in comparatively few schools in the Province. No serious effort is made in the others to carry out the course authorized by the Department. The Superintendent does not hope for great improvement in this branch of Manual Training until it is more definitely recognised by the Board of Education and given a place in the semi-annual returns of the grade teachers. At the Normal School every lady student takes the full course in handwork, with notes on how to teach it; therefore the majority of the teachers are well equipped to take up the work in the schools, and doubtless would do so if the subject were given proper encouragement and recognition.

Manual Training.

The Manual Training course is a very general one, with two processes in wood, the aim being to develop the pupil physically and mentally and give him that degree of manual dexterity so necessary in every walk of life. Drawing is emphasised as a feature of shopwork in every case, because of its educational value as a developer of manual and mental power and of its practical utility, as it forms the basis of practically every constructional industry. It requires but small outlay for equipment and hence is well adapted to the schools of the Province. The Superintendent regrets that the course taken by High School students is very largely a repetition of operations mastered in the lower course; and he

thinks the time of these advanced students could be more economically utilised by special courses giving a thorough groundwork for taking up trades, and a start in them.

The Superintendent thinks that as the "practical man of affairs" pays the bulk of the taxes, it is a good policy to emphasise the practical utility side of Manual Training, as is the policy of many of the best German, English and American schools.

The Manual Training of the first five or six grades must, in the opinion of the Superintendent, be purely developmental in its aim; but after that stage the sexes should be separated into specialised courses and a higher standard of technique fixed, so that at the end of a High School course, a girl should have a broad, intelligent and thoroughly practical conception of household arts and home economics, and be able to do her own millinery if necessary, and certainly make her graduation dress. The work in the special courses should bear direct relation to local conditions and industries. In New Brunswick, which has a large rural population, special courses in carpentry, cement work and forging should be acceptable, and one or more of these might be given in connection with every Consolidated and Superior School, as they do not involve very expensive equipment. For the cities and larger towns, courses in drafting, machine shop work, cabinet-making, pattern-making, etc., would be suitable, according to the special needs of the locality. The Director recommends Evening Continuation Courses in the practical subjects embraced in Manual Training.

In boys' classes the processes and technique should be as near as possible like those of the best workmen of the trades concerned, otherwise the work of school workshops will not command the respect of the tradesmen, who should see that their sons will have nothing to unlearn after leaving school and taking up the trade, and that they are advanced in earning capacity — not that the school should teach trades in full, but that it should give a proper and thorough start in those touched. This kind of Manual Training would induce many boys to remain at school who otherwise could not afford or did not care to do so. Thus they would get the advantage of purely cultural subjects, the value of which they do not appreciate when so young.

Household Science.

Nine new departments have been opened in the Province, the subject being presented to girls of grades 6 to 11 inclusive, except in two cases. In St. John only the girls of grades 8 and 9 take the work, although sewing is carried on to a limited extent in that city in some of the lower grades. In some schools throughout the country, grades 4 and 5 take sewing regularly. Although only 8 teachers in Domestic Science are employed throughout the Province, they represent 5 distinct training institutions and courses. The desire for uniform courses for the Province is almost universal because of the difficulty of teachers taking up work in a way different from that of their predecessors, thus greatly aggravating the usual inconvenience of changing teachers, and hindering the progress of the subject. "By giving young women definite and practical knowledge of the value and

nature of foodstuffs, textiles, furnishings, home nursing, sanitation, etc., we are adopting the surest means of putting our future homes on a sound economic basis as far as judicious spending is concerned."

Training Teachers for Special Work.

The supply of men to teach shopwork in the schools is very limited, however, and the Normal facilities for equipping them are very poor. Such teachers must possess the sound pedagogy of the schoolman and the technique of the tradesman. The latter qualification is obtained by giving a special course of 5 months to men who have had training and experience in teaching literary subjects. This special training course is so short that it has to be confined to a set of lessons in the general tool processes, a little drafting—not sufficient to make them draftsmen—and a smattering of theory. As a consequence men have almost abandoned this field; (there were only three employed in the Province during the last term of 1911) and Manual Training has not advanced as in other countries.

Director Peacock suggests that the course be extended to one year; that the male teachers be advanced to $75 and $200 per annum respectively in rural and town schools; and that the Manual Training Department at the Normal School be re-organised and more favourably quartered. There should also be a regular summer course for teachers in this line. In order to start in this direction it will be necessary either to import a few well-equipped men or to send some of our own men away to qualify, so that they may on their return teach our teachers. The handwork course as organised by Mr. Kidner is most excellent; the director having studied it carefully and found it second to none.

Rural teachers may take a three months' course and give instruction as a sort of side line, the minimum time allotted being three hours weekly. Those who wish to teach as Specialists must have received Normal School training, and devote their whole time each day to Manual Training. In 1909 there were 7 Specialists. The three months' course would give more than Normal Students get in their regular course, which is two weekly periods of 35 minutes, because in the short course two periods were taken together and 75 or 80 minutes weekly are given and no time lost in changing. Pupils in rural schools would not have as much Manual Training running over four years as is given in the three months special course in the Normal School.

For training efficient Manual Training teachers, Director Kidner would have Summer Courses every year, and allow teachers to return and qualify in extra subjects. Five weeks is all that teachers can be expected to take in Summer and two such Summer courses would qualify teachers for rural school work. This short course would compare favorably in point of time with what the English Schools had when they began it, except that the latter teachers had the advantage of nearness to each other, whereas New Brunswick teachers are widely separated. He thought the teachers would like the Summer course, for in 1905, with nothing but a notice in some newspapers, about 40 teachers attended for nearly five weeks at their own expense, and some returned and took the whole course.

A Preparation for Industrial Training.

According to Mr. T. B. Kidner, formerly Director of Manual Training in New Brunswick and now Director of Technical Education at Calgary, Alta., Manual Training was found in England to be a great preparation for industrial training, and in technical schools it was the custom to put the boys who had attended Manual Training schools in one section and they could go at once into the drawing connected with their trade, while the other boys had to learn mechanical drawing. Hence many boys, attracted to the trade classes and wanting to take up such drawing and work of their trades, get tired of the very elementary work they had to do because of not having received Manual Training.

The lads in the New Brunswick schools have not only had enough Manual Training to qualify a number of them to take advanced drawing work at night schools, but they are already taking positions because of their Manual Training experience. Mr. Kidner had found that the draughtsmen at a woodworking mill had been trained in the Manual Training School. If Manual Training can be given a shop bias and the drawing particularly looked after, so that a boy who has gone through the elementary manual training school can learn from a book a good deal about the particular drawing of his trade, he is fitted for something higher.

In this Province the young men and women trained as instructors in Manual Training are competent to give good courses in mechanical and freehand drawing. There is a good freehand drawing course in connection with the Normal. They would not have skill to carry on any evening elementary classes in design.

The Manual Training course is not adjusted to rural schools as to articles made, but as in other parts of America the course is responding to the social influence and only weaker teachers seek definite sequence of small articles to be made. As an example Mr. Kidner found on a visit to one rural school that most of the articles made had been taken home, but next morning a farmer's waggon came with pieces of furniture collected from farmers' houses—every house in the neighbourhood having been benefited from the small school equipment of 4 benches.

The neighbourhood industry problem has not been attacked successfully, but things have been made that appealed to pupils and that they wanted for their own household or school-house. In spots the movement is making progress towards development of home industries for recreational purposes, rather than for profit.

The present direction of the public mind toward technical education is due very largely, Mr. Kidner thinks, to the introduction of Manual Training during the past ten years. People welcomed it because they thought it stood for a measure of industrial education, as an entering of the wedge for other things in that direction, and he thought the people would be ready to spend money for the advanced movement as they had been ready to do for Manual Training.

CHAPTER XIII: CONSOLIDATED SCHOOLS.

THE SUPERINTENDENT'S REVIEW.

Notwithstanding the generous aid granted by the Provincial Government, the Superintendent of Education, in a review of the Consolidated Schools of the Province, reports:—"Consolidation is slowly winning its way and will increase with increased material prosperity. When the ratepayers become educated to spend more for education, as they are spending more for everything else, there will be more of it. Little apparent progress is being made in the consolidation of school districts in this Inspectorate; the movement is not popular. People cannot be made to realize the importance of having the graded organization, Manual Training, Domestic Science and School Garden. In their amazing ignorance and the self-complacency which ignorance brings, they call it 'trying to ape the towns'. They do not know that for a slight increase in expenditure they could have better schools than most of the towns, more up-to-date that is, and that for every dollar of increased cost they would receive two dollars worth of increased efficiency. Time will remove all the hindrances and eventually convince the majority, as the minority is already convinced, that along the line of consolidation, or at all events of larger units than that of districts, lies the next important advance in our public school system."

SECTION 1: INFORMATION FROM INSPECTOR STEEVES.

The school in Sussex, N.B. is a fine type of modern school. The school building with the land cost between $50,000 and $60,000 entirely borne by the district without any Government help. There are 14 rooms containing all the latest features in lighting and ventilation, etc., and a laboratory giving facilities for excellent work in physics, science and botany. Manual Training, Domestic Science and School Gardening are thoroughly taken up. Manual Training and Domestic Science run from grade 3 to 8. This work does not interfere with ordinary school work, but rather helps by correlating the work in geography, grammar, and arithmetic.

Inspector Steeves, the author of the pamphlet on Nature Study that is used in the rural schools, has taken special interest in the Sussex School, and has used it for working out many of his ideas. He looks upon physics and mechanics as preparing for the practical life of the people and thus far more important than having much time spent on classics.

Nature Study and Industrial Work.

His experience has been that introducing practical Nature Study work and subjects that correlate with them in the various grades, and connecting these with the industries of the town and Province, will educate with more purpose than

at present. He would begin Nature Study work at the very lowest grades. He thinks that to the neglect of this is traceable largely the decimation of country sections. Nature Study would help a child to go from the known to the unknown and he will work out other lines and take in other ideas as he is engaged in his work. More Nature Study and industrial work in country schools would create a class of pupils capable of taking the High School course within their own county; and with Nature Study would develop another class of pupils who would seek an Agricultural College education. Inspector Steeves had an idea that the Sussex School might be utilized for this latter purpose and if the trustees bought 5½ acres of land in connection with the school, established the school garden and provided the additional rooms, he felt that a large number of pupils could be drawn from the country sections in the county who would take an agricultural course, using as a help the outlying farms which are well equipped and capable of giving them excellent instruction. Thus a great deal of advanced agricultural work could be done, leading to the Agricultural College. Many young men have wished they could take such courses, feeling that they would have done a great deal better work if they had had such instruction while growing up.

At the Teachers' Convention of King's and Queen's Counties last year, Agricultural Societies within Mr. Steeves' inspectorate were invited to co-operate and as a result took charge of one session of the Teachers' Institute. It was such a success that it was to be continued, when a program would be arranged especially for Agricultural Societies at which work pertaining to Trustees' interest in schools would be discussed. The two days' program is planned along the lines interesting not only to teachers, but Trustees and farmers; the idea being to bring the school to the home and take the farm to the school.

Larger School Districts.

Inspector Steeves is strongly in favor of the Parish instead of the District being made the unit for school purposes, so that instead of District Trustees there should be Parish Trustees, the tax being a County instead of a Parish tax, and on all property in the County, the rate being raised to 40c. or 60c. on all, so that the strong would help the weak and give an even chance to all people to get a fair education. This would tend to consolidations of districts where it could be done with equal efficiency and less expense, but in other places a one-roomed school would have to continue, advanced pupils being carried to larger schools with additional advantages.

When three or more school districts unite to form one district with a central school providing, in addition to the regular subjects, Manual Training and Household Science with a School Garden, such a school is called a Consolidated School. The Provincial Government pays not only half the cost of conveying the children to and from the school in vans, but also half the cost of the equipment for the Manual Training and Household Science department and half the cost of the initial supply of material for them.

The reports from the Principals of the Consolidated Schools are very interesting, as showing the great benefits derived by the pupils. For example, at

Kingston, the people showed their appreciation of the benefits of consolidation in a most convincing manner. Their building was destroyed by fire, but the people decided to rebuild and go on, although the district had not a large valuation and the problem of conveyance presents many difficulties, more vans being required than in any other Consolidated School.

SECTION 2: THE RIVERSIDE CONSOLIDATED SCHOOL.

At Riverside extensive school grounds have been cleared and laid out in an artistic manner by a landscape gardener, and the natural contour and disposition of the grounds afford a splendid opportunity for effective landscape gardening. The pupils are bright and alert, the teachers enthusiastic and industrious and the Board intelligent and progressive. The building has been admirably planned and contains modern appliances within and without. During 1910 the school became the owner of some 7 acres of land, thereby making generous provision for boys' and girls' playgrounds, a large garden plot and plenty to spare for a future van shed. This school tried an experiment by permitting all pupils except those of grades 8 and 11, who maintained an average of 80 per cent. on their work throughout the year, to advance to the next grade without final examination. Principal Anderson remarks that it is perhaps too early to tell with finality the results of the plan, but he pointed out that a large number of the leading pupils of all the grades this year are of those who were so advanced.

At the end of 5 years' record of the school it is interesting to note the careers of graduates who have continued their studies. The record shows that two have taken Arts courses, 5 Science courses, 4 Ladies' College, 2 Commercial College and 7 Teacher's courses. Thus 20 out of a total number of 34 graduates have continued their studies in High School, which is probably a higher percentage than that of city schools. The Principal remarks: "This is a further evidence that it is to those who purpose entering the professions that the upper grade courses of study appeal; possibly also that the appeal is more exclusively to this class in a country community than in the city." He notes that a 10th grade student of last year was one of two from New Brunswick who passed the entrance examination to the Naval College in Halifax. The basis for drawing inferences as to the work in Manual Training and Domestic Science is too narrow, but the Principal remarks that the lack of opportunity for engaging in woodwork in the immediate vicinity of the school may affect the result. The school attempted to do something toward teaching singing, but changes in the staff rendered it impossible to continue the work. The Principal asks, "How long will it be ere our Normal School can furnish us with teachers competent to perform this service?"

The Domestic Science department is one of the most popular with the pupils; the department won a medal and diploma for sewing at the Dominion Exhibition in St. John. Manual Training and Domestic Science departments are collaborating for the furnishing of the school office. While the Principal is fully convinced of the need and possibility of the School Garden movement, intimate acquaintance with it has convinced him that it has not yet been

perfectly worked out. The principal difficulties and hindrances which have yet to be surmounted are (1) lack of co-ordination of science with garden work; (2) lack of care during the 8 weeks summer holidays, in a district where many of the pupils are from 2½ to 6 miles distant from the school and where others are away a part of the whole vacation; (3) teachers who are ill prepared to direct the work; (4) shortness of the growing season, rendering almost impossible in our climate the accomplishment of very much of account before the summer vacation.

In order to provide for the summer care of a garden, a prize of a two days' trip to the Dominion Exhibition at St. John was offered for the best School Garden tended wholly by a pupil. This secured more or less thorough care from 14 or 15 pupils, about a quarter of those in the classes. A pupil was hired to do the work of other plots whose proprietors forfeited their claim to the product in consequence. A school exhibit, including home garden products, resulted in 10 or 12 pupils operating gardens—a phase of the work from which much may come under proper direction and encouragement. The exhibit included also Manual Training, writing books, Domestic Science drawing books; School Garden science notebooks; home garden; geometry notebooks; natural science collections; the school paper, and a sketch plan for the improvement of the school grounds, as laid out by a local landscape gardener, Mr. Herbert E. Goold. Lack of interest in the garden work is all the more regrettable in a section so predominantly agricultural. Possibly the case is that the garden work is tacked on to the regular school syllabus rather than being incorporated in it. The Principal remarks that the amount and nature of science adapted to grades of a school serving an agricultural community is surely different from that fitted for a school in a manufacturing centre, whereas our teachers have been trained to teach such science as is fitted to qualify pupils for college entrance and hence are ill prepared for School Garden work.

SECTION 3: THE FLORENCEVILLE CONSOLIDATED SCHOOL.

Principal Simms, of the Florenceville Consolidated School, speaks encouragingly of the work in Manual Training and Domestic Science—5 hours a week are devoted to these branches—and he believes the time is well spent with general satisfaction. School Garden work was done in common by the pupils during the holidays. The trustees provided for the care of it, and after the products were gathered, the place was ploughed for the next season. There is a widespread desire for more of such instruction. Considerable time is being devoted to Natural Science and Agriculture. After 5 years of consolidation in Florenceville the argument rests in favor of the principle. The attendance is certainly more regular than in any other school where Mr. Simms has been located. The means and advantages for teaching need no demonstration. If the cost has increased, such increase is not in the same ratio as that of the cost of living or price of labor. With a number of old bills carried over into the estimates for the present year, the amount raised for the school comes to a rate of nine-tenths of one per cent. lower than the majority of the other villages in the country and of many country districts. The deportment of the pupils is excellent, and the Principal is much

encouraged in his work. Manual Training is conducted by a lady, Miss Wetmore, who also has charge of grades 3 and 4. Through her enterprise, the school has been provided with several useful articles, such as towel racks, picture frames, etc., this work having been done by her class outside of the regular hours. Principal Simms says he has met no one in the section who does not praise the work and aim of Manual Training. He thinks it possible, from the interest in School Gardening shown among the lower grades, to cultivate more sympathy for this work where now, especially among the older ones, particularly the girls, there seems a distaste. He supposes this would be reversed if the whole class were sent to Domestic Science.

Domestic Science.

There being a number of large landowners in the district having no representation in the school, with the idea of interesting them and benefiting them, a Farmers' Club was organized in connection with the school, and after some public meetings, when men prominent in agriculture gave addresses, a regular Agricultural Society was formed which meets monthly for discussions of important topics. There is much enthusiasm for the project and it has worked well.

SECTION 4: THE HAMPTON CONSOLIDATED SCHOOL.

The Hampton Consolidated School runs only one van which brings 11 children from a district 4 miles distant, but the increasing popularity of the school is drawing 15 children from 4 other districts. Some of the pupils walk a distance of 4 miles; others drive or come by train, while still others board in Hampton. The Manual Training and Domestic Science courses are increasingly popular among the parents and pupils. A sewing machine has been purchased for the Domestic Science department and the effort is to make the work as practical as possible, and while teaching girls to sew and make little articles of needlework, at the same time getting them to make articles that are in themselves worth while. Principal Delong thinks the aim should be to get the girls of the higher grades to do some of their plain sewing in school, and in this work the machine is a prime necessity.

The School Garden was well kept during the summer holidays, the trustees having made provision for weeding, so that at the opening of the school it presented a fine appearance. There was no lack of willing workers for the ingathering of the crop, while in the advanced department the nature lessons connected with it were followed with interest.

The experience of the Principal in Hampton has convinced him that consolidation is the system needed for rural schools. It helps attendance, rainy weather and snow storms being no bar, even to girls or young children, and this has been especially helpful in the lower departments. The class rooms are commodious, well lighted, heated and ventilated, with good apparatus, including an electric bell system; enthusiastic teachers and pupils anxious to help the school and its work in every way, modern courses in Domestic Science and Manual

Training within the reach of all—conditions which are much more favorable than exist in most of our town schools, and all directly due to consolidation.

In 1910, 93 pupils prepared and looked after garden plots and a great deal of time was spent voluntarily by pupils after school, and many took entire care of their plots during the summer vacation. The pupils made careful records of work done—the time of planting, the appearance of the seeds above ground, amount of seed for produce, etc., and the teachers correlated this practical work with the general Nature Study, more especially with lectures on compositions of soils, plant food, germination, and so on. The School Board was very generous in its outlay for the garden, spending $33 for a caretaker during the holidays. This school was awarded 2 prizes for the best general exhibit at the Dominion Exhibition at St. John, and also the 1st, 2nd and 3rd prizes for exhibits from individual plots; the prize money amounting to $11 out of a total sum of $21 granted by the exhibition. The pupils have started a magazine, which they have made financially successful. It is not only stimulating to literary composition, but also to attendance and regularity, punctuality, etc., as the names of pupils who make the highest standing in these respects are published. Pupils from this school stood third and sixth in the Normal School entrance examination for 1st class certificates, and a candidate for second class stood well up on the list.

These facts are cited as proof that the special subjects in this school do not in any way detract from excellent work in the ordinary subjects. The full classical course is now in operation in the High School, and candidates are being prepared for University matriculation. Manual Training and Domestic Science still retain their high place in the estimation of pupils and ratepayers. During the past term pupils have shown a greater zeal and earnestness than ever before. Their deportment is exceedingly good, and they are very careful of their fine school building, which is in almost perfect condition, both inside and outside, and gives no evidence of the fact that it is almost four years old.

CHAPTER XIV: FROM SCHOOL INSPECTORS' REPORTS.

Inspectors come in close contact with the teachers and know all the problems of each section in minute detail; hence their reports are intensely interesting and suggestive. In New Brunswick the inspectors' reports are prominent in the records of education, and a reference to them may be in place, particularly in relation to the subjects with which this Commission is specially charged.

Writing—One Inspector says that the new copy books have encouraged a form of hybrid writing, a mixture of the vertical and natural slant; but he thinks that this is only a temporary drawback, and on the average the results are up to requirements.

Drawing—Another reports considerable progress made in Drawing. The trouble heretofore has been that there was too much copying, and too much accuracy was exacted in the primary grades. Now, pupils' crudest efforts are accepted as having value, provided they do their best, and it is marvellous to note the difference from term to term under the stimulation of encouragement. He suggests that a paper on Drawing at the entrance examination would further emphasize this subject. In the majority of schools in one district, Drawing is practically a dead letter.

General Education—An Inspector reports added interest and increased regularity of attendance where schools are doing some work in special subjects, and he notes that a more thorough education on purely scholastic lines is being given in consequence. He considers that the great work of the public schools is to impart ability to read and spell well; to speak and write well in concise and grammatical English expressive of the exact thought in the mind; to correctly and rapidly perform the fundamental rules of arithmetic and apply such knowledge to the solution of problems; and to acquire an intelligent knowledge of geography and history.

One Inspector reports that the work done in ungraded schools is for the most part satisfactory; the majority of the teachers are energetic and enthusiastic; they often work under great difficulties, the Board of Trustees not being sufficiently attentive to provide necessary apparatus, in some cases the teacher by her own energy procures funds to equip the school.

One feature affecting rural schools is rather disquieting; some districts have been so depopulated by emigration that the school can be maintained only with great difficulty. The enrolment in some cases is less than 12 and in one case as low as 3, so that the cost per pupil is very high. Certain districts could undoubtedly be consolidated with advantage, but there seems to be an almost insuperable obstacle in local jealousies.

An Inspector whose experience had been almost entirely in city graded schools, believes the country schools compare very favourably both as regards effi-

ciency of teachers and intelligence of pupils with those of cities and towns. He believes the frequent change of teachers results in too much attention being given to the older and more advanced pupils, younger ones being neglected.

The loss to the Province occasioned by the removal of so many teachers to the West is deplored in most of the reports. One Inspector points out the serious economic nature of the problem by considering the cost of educating a pupil up to Grammar School license, then his value to the community as expressed by the capitalization of his earning capacity. The gravest aspect of the problem is that the maintenance of the high educational standard attained in the Province is absolutely dependent on the retention of teachers of the Grammar School class.

One Inspector philosophically remarks that when one considers the success achieved against such odds as apathy and indifference, irregularity of attendance, too frequent changes of teachers, false principles of economy, and many other difficulties constantly thrown in the way of educational progress, it is safe to say that there surely exists a spirit of enterprise and progress which will ultimately triumph along the lines of educational advancement. He remarks that in the majority of cases the school buildings are good, but put up a miserable exterior appearance owing to lack of paint, and in not a few cases the bright appearance of the school house is impaired by the wretched state of the grounds and surroundings.

Another Inspector reports that Trustees seldom visit the schools unless something disagreeable forces them to call. Ratepayers who have children at school, as well as Trustees, miss many a chance through neglect to help the school to reach a higher state of efficiency.

An Inspector suggests that as people take a lively interest in themselves, their ancestors and the locality in which they live, the teacher cannot be occupied with better outside work than studying the history of the district, locating historical sites, collecting records, traditions and such historical data as are available. Teachers would thus preserve their mental freshness and their sympathy with striving pupils. Some ratepayers speak of the lazy, lounging habits of some teachers. Every teacher should be cultivating a physiographical, historical and economic interest in the districts surrounding his school.

One Inspector finds that many otherwise sensible people think that the chores children do in their homes provide all the physical exercise necessary for bodily development; yet he has heard no objection to the physical drill in schools, but on the contrary, many commendations. He wants to see children grow up with straight backs, full chests, strong limbs and all the other points of a good, sound body.

The matter of unequal taxation in Districts situated in the same Parish is a serious hindrance to the welfare of the public schools. In one District an Inspector found the rate of taxation to be nearly 2 per cent on assessed valuation, while in the adjoining district it was about one-fourth of 1 per cent. In still another he was informed that a very large amount of property escaped taxation for school purposes altogether. He considers that the only remedy for such an anomaly is to make the Parish the unit for purposes of taxation, with a Parish Board of Trustees.

Manual Training and Domestic Science are being favorably regarded. School Gardens and Nature Study, appealing as they do to the outside and industrial life of the people, and requiring small expenditure for equipment and maintenance, possess advantages for practical education which will give them a great lead in country schools until Consolidated Schools become general.

Nature Study and School Gardening.

"The Nature Study and School Gardening course authorized by the Board of Education in September 1908, if conscientiously followed by all concerned, cannot fail to give a great impetus to the study of nature in our schools".—Such is the opinion of one Inspector.

One Inspector reports that in most country schools the weather report is kept and the children's observing powers are being developed by requiring them to observe the direction of the wind, and other phenomena from day to day, as well as in noticing the migration of birds, budding of trees and plants, and the gradual unfolding of these buds into flowers and leaves. Through the study of farm weeds and insects injurious to crops, the country children are being led to take more intelligent interest in farm work and it is hoped this may induce many to remain on the land.

The teaching of this subject is taking more prominence in proportion as teachers are recognizing its stimulating effect upon the pupil and upon the work of the whole school. The point and purpose of the work are coming to be better understood. Definiteness is secured by a careful apportionment of instruction. The senses of the children are being trained to be alert to gather information from their environment. Such activity must be of the greatest advantage in all school work.

In the Sussex district a series of 5 lectures on farming to 10 schools was conducted by the Provincial Dairy Superintendent, and many people expressed their high appreciation of such instruction in schools, as it tends to increase the children's interest in home activities and stimulates them to more consistent application to the study of history, geography, science and drawing by awakening and directing their perceptions to real life and also affords more material for both oral and written composition.

School Gardens.

School Gardens are constantly increasing in usefulness and popularity, but the work is seriously hindered by the need for trained teachers who are willing to qualify by study and adapt themselves to the requirements of the work. At the Teachers' Institute for the counties of King's and Queen's a new feature was the setting apart of one session to the discussion of educational matters having a bearing on country interests. This drew a very large audience, presided over by the Provincial Commissioner for Agriculture, and addresses were given on forestry, school gardening and soil and its treatment. In many schools the growing plant has been made to illustrate some of the nature and science studies of the schoolroom; the

bulletin "Farm Weeds in Canada" has been distributed to most of the schools and is proving of great assistance.

Other Inspectors note the increasing interest in this subject. The work of the educational and agricultural authorities and of many enthusiastic individuals is slowly but surely bearing fruit. Much better provision must be made for training teachers in these subjects.

One Inspector doubts if it is advisable to encourage teachers who are not especially qualified for the work to attempt systematic garden work. The Normal School building is so crowded, the classes are so very large, the staff small and the courses short, while the prescribed work in other subjects is so extensive, that the teachers are very inadequately prepared for Nature Study and Agriculture. He recommends a short Summer School in these subjects, with financial inducements to Inspectors and teachers to attend. The Inspectors generally take hearty interest in the School Garden. The Provincial Supervisor of School Gardens believes that in order to do effective work, he should be in a position to devote nearly all his time to organising, supervising, addressing meetings, etc., as is the case in Manual Training.

A teacher in an ungraded school reports that the effect of the study has been to make the children more observant, more free to talk and better able to record their ideas. The interest taken in this subject has in many schools been extended to the other subjects of the course.

The inspectorate in which Fredericton is situated does not contain a single School Garden outside of the Normal School. The Inspector believes that the time is not far distant when teachers and inspectors will be required to take a special course in agriculture in order to qualify for work in rural schools.

NATURE STUDY.

Teachers report that the few minutes required are not missed, while the study has proved both interesting and instructive to pupils. Weeds and pressed leaves from different trees have been used in drawing. The big sons and daughters of fishermen in one district were much interested in the weather report, and added another column headed "Forecast", in which they predicted the weather for the following day.

In another school a list was kept on the board each month of flowers reported by pupils; estimates were made of various farm products of the district at current prices and also drawings and bills of same. This work did not injure the regular school studies as much was done out of school hours. The pupils seemed particularly interested in collecting and reporting on flowers, weeds and seeds.

The teacher of the Boys' Industrial Home, Crouchville, reports that if everything falling under the head of handwork were eliminated, the teacher would be compelled to leave the schoolroom. To the boy, Nature Study is as good as play and stores his mind with useful knowledge, training his eye to careful and accurate observation. One boy who had given considerable trouble by running away, showed his first interest in two tiny house plants and by the time he had planted, tended and harvested his School Garden plot, he was one of the steadiest

and best boys in the Home, Nature Study doing for him what teachers had failed to do—interest him in life and in being alive.

The results of the special effort to make this work effective are very encouraging to one Inspector, who after reading reports from 120 teachers, notes that they are unanimous in stating that this work has introduced the element of interest in the schoolroom. Most of the boys' work in composition brought under his notice during the year was the outcome of the child's natural desire to express in writing what he had been led to observe in the Nature Study course. Not a few schools already have their collection of different weeds, minerals, soils, seeds and plants, all collected in the neighborhood.

Arbor Day was observed in 90 districts of one inspectorate; 224 trees and 69 shrubs were planted and 167 flower beds made. Great efforts are being made to beautify school premises. Inspector Hanson is convinced that in the majority of his districts, Arbor Day is a failure, there being too often no work done in the grounds, and he has felt impelled to disallow the day when reports have come in.

The Nature Study and Agricultural Course for Country Schools.

The purpose of this course is to develop a habit of intelligent observation; to actively connect home and school interests; to increase the child's knowledge of his own neighbourhood, its flora and fauna; to use all with educative interest, and to correlate the work laid down with the other regular school work, this branch being made to help all others. Thus, point and interest can be given to Arithmetic, Spelling, Composition, Drawing, Geography and History by relating them to features and conditions of the district, and the teaching in this way can be made more effective. No attempt at scientific treatment is expected. Much can be done by pupils at home and on the road to and from school, the teacher guiding and stimulating endeavor in the pupils, and personally leading the way in collecting information, reporting, making drawings, asking questions, and encouraging and commending the pupils' efforts.

The course covers: (1) Weather report, pupils being taught to observe and accurately record daily conditions; (2) Bird calendar. Birds are observed, described, named; their coming and departure accurately noted; their habits studied; lessons given on their food and economic value; and monthly exercises in drawing the birds which have been studied; (3) Study of the district. A physical map of the district on a larger scale is gradually constructed throughout the year, indicating hilly and forest land by different shading; streams, brooks creeks and rivers are marked, and the location of roads, bridges, churches, halls and post office indicated, each pupil marking in his own residence; (4) Observations, arranged in grades, for each month, covering such points as farm weeds, insects and birds; plants, seeds and crops grown; domestic animals and their habits; rain, frost, snow, ice, fruit blights; export and markets of districts; soils and their fertility, etc.

The teachers are required to report to the Inspector during the last school week in December as to the character and effect of this work.

CHAPTER XV: SUMMARY OF OTHER TESTIMONY AS TO ELEMENTARY EDUCATION.

The opinion was expressed that the curriculum was too crowded and did not allow room for industrial training; that the teaching was not properly arranged and was less thorough than forty years ago.

One witness considered that agriculture should be taught in preference to Latin. The boys needed inducement to go into manual labor.

The teachers might find out in the early grades what occupation a boy was most fitted for. The schools at present held the wrong kind of ideal before the boys and the curriculum was not such as fitted the boys for trades.

Complaints were also made that agriculture was only nominally taught and that, in consequence of the curriculum being too heavy to add technical subjects, the schools were unable to educate farmers.

Some subjects might be dropped and map drawing introduced instead of Latin. Latin was of little value to most of the children and what the boys needed most was arithmetic, drawing, and ability to read plans. The schools were not at all satisfactory, boys did not recognise the teachers' authority and the teachers were not backed up by the Trustees.

Many of the children had to work in factories instead of going to school. A large percentage of the children in St. John left school at fourteen, only about ten per cent continuing after that age.

Training in writing and spelling is much needed and one witness suggested that a phonetic alphabet was required. The writing was stated to be worse than twenty years ago and the general demand for commercial education was increasing.

The schools at present do not prepare for industrial life, and an advisory committee was suggested for the schools to guide boys in the selection of an occupation. Secondary industrial schools were favored for boys between fourteen and eighteen. The chief difficulty was the attitude towards manual labor; and the social view must be corrected before real good can be achieved.

One witness stated that the public schools were starved, and another that the results were not commensurate with the taxation. The Common Schools Law is thought to be unjust to the poor settler. In back districts farmers paid $2 on each $100 for school taxes, yet one witness owning a farm valued at $25,000 paid only between $30 and $40 for schools.

CHAPTER XVI: SUMMARY OF OTHER TESTIMONY AS TO SECONDARY EDUCATION.

One witness thought scholars should have option of agricultural or mechanical studies in High School. Another thought Normal training should not be less than one year. Normal School students should have a course in dairying and bee-keeping. Teachers should be improved in Manual Training and Domestic Science facility by having summer courses every year and should return and qualify in extra courses. If they were diligent they might get sufficient training during the Normal Session to be able to teach Manual Training. Teachers' Institutes have been of help to a new trend of thought. Summer Schools, especially that at Truro, have been very useful.

Several witnesses had taken Correspondence Courses at $55 or $60, some in mathematics and some in architecture. The manager of the Sulphite Mill had taken mathematics, geometry, paper-making, electrical engineering. Journeymen need more training; some have taken a Scranton Correspondence Course, but many are too backward in general education to profit by it. One witness, who had served a regular apprenticeship as a machinist, read mechanical books, and took a course at the business college and a course at Scranton costing $80, thought he could have learned more in a night school. One witness said he thought 75% of those who took Correspondence Courses would attend a Technical School in preference if one was provided. The Scranton Correspondence Course is approved for apprentices, but as preliminary education is necessary in order to profit by any Correspondence Course, a personal teacher was considered better.

Continuation schools are much needed. Steps should be taken for the further education of those who leave school at fourteen. Boys of 18 require instruction to learn to make their business pay.

A Principal deplores the small number of boys who go to High School. He is convinced that they do not receive the encouragement they should to complete their school course. Strong evidence is given by the fact than many pupils in the lower school are kept away for a month or more at a time to work for wages, or for less important reasons. Once a boy has fallen behind his class, he can hardly be expected to take a normal interest in his work, and parents as well as pupils must be led to see how poorly equipped is the boy of to-day without at least all the education provided by the school at his door. A step that would go further towards improving these conditions, but that would yet reach only a portion of the boys and girls, would be the providing of a thorough business course which would include arithmetic, literature, composition, grammar and penmanship, along with the purely commercial subjects.

A suggestion was made of a central school in connection with the University, for industrial work, with sub-schools, evening schools and trade schools in different sections of the Province.

Technical Education would be useful in St. John and would greatly assist in different problems. If it were established there should be classes in drawing, book-keeping and stenography. Separate schools for industrial training are an immediate need and the School Board of St. John would allow the use of school rooms.

Children should have lessons in industrial economics and a technical school would make the selection of those best fitted for industries possible. Technical education is good for boys, but it must be recognised that they can only learn how to do things by doing them. Practical work in addition to technical education is necessary.

Technical education is necessary to give workmen the necessary knowledge to make them skilled. Machine operators require mechanical skill and mechanics complain of lack of arithmetic and drawing.

It would be dangerous if the schools educated boys to push out workmen. Men trained for engineering must have shop work as well. There should be a primary Technical School, supported by the community, for boys from 14 to 18, with more science teaching. A school like the Manchester (England) Technical School is suggested.

Evening Classes.

Compulsory evening schools are needed and would be more likely to succeed if of a practical character with Manual Training, Domestic Science and Nature Study. A special course in Navigation is suggested by a former teacher in St. John. Evening schools are needed for home-making and cookery for women in factories; and the classes should be free. One witness said he would go himself two or three nights weekly and he thought the majority of the men in the shop would if drawing and mechanical engineering were taught. Printers would go and the Printers' Union has a course prepared, including courses in punctuation, advertising, drawing and designing. A printing plant is desired.

One witness doubted whether there would be a large enough attendance at the evening school on account of the men being fatigued with their day's work. He thought the introduction of an eight-hour day would help in this respect. There were from 400 to 500 lads of from 14 to 17 years of age in St. John who were learning trades and who would value the assistance of an evening school and in this way the evening school could be made to benefit the industries.

Evening school pupils are more earnest than day school pupils and a class for apprentices twice a week during the summer months would be of the greatest advantage to earnest boys. One witness thought boys would be too tired for evening classes.

Evening classes would be very helpful to foundrymen but would not help apprentices much beyond stimulating general intelligence. Some would profit a great deal but others would prove to be too careless.

Lectures should be given on the leather trade, as the men would prefer a lecture once a month to an evening school, which would have to be interesting to do good.

In England evening schools were the rule rather than the exception. Foremen would be the best instructors for apprentices and journeymen. If a class were started in Woodstock, the Board would probably grant the use of the building. St. John had evening schools for two or three years in different subjects but not industrial training. The public school building was used last year and sixty pupils attended. The King's Daughters had a class of ten or twelve for bookkeeping and penmanship. Scientific subjects would be popular for lectures.

CHAPTER XVII: THE UNIVERSITIES IN RELATION TO TECHNICAL EDUCATION.

SECTION 1: THE UNIVERSITY OF NEW BRUNSWICK.

The University of New Brunswick, located at Fredericton, is a Provincial Institution supported by Government grants, endowments and fees from students. The Lieutenant Governor in Council appoints 9 members of its governing body, the Senate, including the President and Chancellor; 4 are elected by the Associated Alumni; and one by the Educational Institute of New Brunswick. The President and Chancellor (the former being the Chief Superintendent of Education for the Province) are permanent members of the Senate; the others hold office for two or three years, as provided by law. The Chancellor is the Chairman of the Faculty and administrator of the affairs of the University. The Senate appoints the professors and other officers and fixes their salaries. The University provides a four-year course for degrees, students of both sexes being admitted to the Arts course on equal terms; matriculation examinations for admission may be written either at the departmental examinations held by the Board of Education in July or at the opening of the University in September. The student in any county who makes the highest standing in the July matriculation receives the scholarship of $60 for that county, provided such student attends the University.

The Department of Applied Science gives a thorough and practical training in Engineering and Forestry, and fits students for business and professional careers. The course is made as comprehensive as possible, to include all branches of engineering—Railroad, Hydraulic, Highway, Municipal, Bridge and Structural, Sanitary. Students are prepared for the examination for Deputy Provincial Land Surveyors. In the Civil Engineering course some Steam and Electrical Engineering is given. The Electrical Engineering course comprises extensive laboratory work.

The Forestry course is the same as the Engineering in the first 2 years, with the addition of Botany and Forest Botany. In the last 2 years the pupils study the application of modern scientific forestry methods.

The laboratories comprise: a Cement Laboratory, for testing all kinds of cement; a Testing Laboratory, containing a standard testing machine, return tubular boiler, Robb-Armstrong engine, steam engine indicator, screw cutting lathe, machinist's bench, and hand forge; a full equipped Physical Laboratory; a Chemical Laboratory and Geological Laboratory. There is an Observatory, full equipment of field instruments, and forestry equipment.

A Scholarship is awarded to the most successful student in 3rd year Physics. The City of Fredericton gives a Gold Medal in Engineering, Chemistry and Forestry in rotation.

There is a well equipped Museum in connection with the University.

FROM DR. C. C. JONES.

Information obtained from Dr. Cecil C. Jones, Chancellor of the Provincial University, Fredericton, N.B.

There are Arts and Applied Science departments, the latter including Civil and Electrical Engineering and Forestry, the last-named being the most recent addition. The course in both departments is 4 years. This University is not affiliated with any other institution for advanced work. There is no department for Agriculture, but a little agricultural chemistry for schools is taken up.

The students mostly come from New Brunswick, the attendance being about 168. The entrance requirement in both sections is the same, except that Latin is not included for the Applied Arts department. Applied Arts students are not quite so well prepared in the High Schools, and therefore the work in this department is more elementary.

The Forestry Course aims at training efficient foresters for the Provincial service. The University has a forest of about 6 square miles for practical work. Hitherto, the graduates have found employment chiefly in the Dominion Forestry Department, and many join survey parties in the west.

Graduates and students of the Engineering Course find employment in connection with railway work, etc. The Electrical Engineering men work in summer at surveying work. This summer work is essential to their training. The University has a Mechanical Engineering Department, but no course for a mechanical engineering diploma. There is a demand for it, and if means were available, it would be established.

Students in the Electrical Engineering Department make observations at the plant of the Fredericton Electric Light Company, and work there during vacations. The attendance in the Engineering Departments has increased four or five fold in 10 years, and if a larger equipment were available, more students would come. In the Civil Engineering course one teacher gives his whole time, and the professor of mechanical engineering and drawing gives the drawing to mechanical engineering students. The electrical engineering man gives part of his time to physics, with one or two student-demonstrators to assist him. There are more students in the Civil Engineering Department than any other.

The extension of Industrial Training and Technical Education in New Brunswick would not interfere with the Arts course. It would need to be continued on the best lines possible. It is a great advantage for the Arts students to mix with the others.

In regard to short courses for teachers, the Chancellor thought the University could co-operate with advantage in vacation courses. The University should be as closely identified as possible with the progress of the common schools.

Nature Study and Domestic Science in the public schools would not menace the supply of pupils to the University. Nature Study begun in early life is a good basis for science work at the University, and Manual Training would be especially valuable for the technical courses. Speaking for himself, Mr. Jones favored any effort to advance Technical Education or Industrial Training, if means permitted of it.

The University has been urged to take up Agriculture, but this would be impossible without a special grant from the Province.

There are no funds for research work, and none is undertaken, beyond what the professors take up for themselves.

Chancellor Jones said he did not altogether sympathise with the criticism that the school curriculum points directly to the University. He is a member of the Committee that settles the course of study for the schools, and expressed himself as fairly well satisfied with the present course of instruction. In the Civil Engineering course at the University, French is required instead of Latin. The first two years include general culture subjects, with either German or French, and Mathematics, which is fundamental to this work. No higher standard of mathematics is expected than from Arts students, but more work. No specializing is done for the first 2 years.

Chancellor Jones had found that the Scranton Correspondence Courses were not a good preparation for entrance to the University, being too specialized. English is an essential subject for an engineer, as he has to make specifications and reports, and the correlated subjects are quite necessary for a thorough training. Dr. Jones thought it would not be wise to revise the present system so as to allow young men to enter who were not adequately prepared. He favored doing more along technical lines, with a Central School in connection with the University, and Branch Schools in different parts of the Province.

SECTION 2: THE UNIVERSITY OF MOUNT ALLISON COLLEGE, SACKVILLE, N.B.

This College was established under the name of Mount Allison Wesleyan Academy previous to 1858; in that year the name was changed to Mount Allison Wesleyan College, and in 1886 to its present title. It has Faculties of Arts, Theology and Applied Science, and is affiliated with McGill in the latter, students taking the first 2 years of the course here, and entering McGill Engineering faculty in the third year. It is also affiliated with the Dalhousie Law School.

The internal administration is conducted on non-sectarian principles. Its management is vested in a Board of Regents and a Senate, the latter body con-

sisting of all the members of the Board of Regents and the Faculty; it is charged with such duties as forming the courses of study and conferring degrees. The general management of affairs is entrusted to the Board of Regents, consisting of 32 members, 24 of whom—12 ministers and 12 laymen—are appointed by the General Conference of the Methodist Church; 6 representatives of the Alumni Society and two representatives of the Alumnae Association of the Ladies' College. The University provides a 4-years' course in Arts leading to a B.A. degree, students of both sexes being admitted on equal terms; a Divinity course leading to the degree of B.D. (Bachelor of Divinity) and an Engineering course leading to entrance to the third year of the course of Applied Science in McGill University, Nova Scotia Technical College, and similar institutions. The Ladies' College and Boys' Academy prepare students for entrance into the University; the former also provides a course in elocution, painting, drawing, music and household science.

FROM PROFESSOR LAWRENCE KILLAM.

Information received from Professor Lawrence Killam, of the Mechanical Engineering Department, Mount Allison University.

The course here prepares for Worcester, the Massachusetts Institute of Technology, the Halifax Technical College, and McGill, the first 2 years being taken here. It is not intended to be a 2 years' short course, but is part of the 4 years' course. There are 212 men in attendance, of whom 42 are taking the general engineering 2 years' course. Most of the 212 take some science subjects. In the 2nd year class there are quite a number of students in Mining. They can go to the 3rd year at the Colorado School of Mines. Formerly the majority of the students went to McGill, but some are now going to Halifax Technical College. Most of them come from Nova Scotia and New Brunswick, from the towns. Some have worked in shops before coming. The average age on entrance is about 17, but some are over 20. The younger men are better at theoretical work, the older ones at shopwork, and the latter are generally harder workers, as they appreciate what they want to get. On entering the 3rd year of an Engineering College, students have to select a course, and the general 2-year course is a good preparation.

Prof. Killam considers that actual shop work is absolutely essential as a preparation for teaching other men. He does not advocate the week-about plan, as the men would get out of practice with both shop and theoretical work. Shops at the school are good, because students can go on studying without a break, and there is a great deal of drill in shopwork. The witness thinks that almost any mechanical engineer from McGill can have his choice of positions, provided he has done plenty of practical work. Some graduates of McGill start at 9 cents an hour, just to get practical experience. Manufacturers who take students realise that the training they have had makes them much quicker in the shops as soon as they have learnt the groundwork.

Men working in foundries would do well to go to evening classes, and the College would gladly give its plant for evening classes.

The witness left High School (11th grade), then studied at Mount Allison for 4 years in B.A. Arts course, taking extra mathematics. Then he went for 4

years to McGill, taking mechanical engineering to B.Sc. degree, with shop practice. The latter was useful, but not so useful as the actual shop experience gained later. He had worked his way through the shops, and found that this helped him greatly when teaching men in the shops. Manual Training at school would have awakened his interest and given him skill for practical work.

MOUNT ALLISON LADIES' COLLEGE, SACKVILLE, N.B.

This College was founded in 1854. The Conservatory of Music was erected in 1890, the Museum in 1895, and a new addition in 1903. In 1909 the Jairus. Hart Hall extension was added, and a spacious Household Science Hall was furnished by Mrs. Massey-Treble, provided with two teachers and all modern appliances. This department gives 2 years Normal Course for those having 1st class teachers' certificate, comprising physics, chemistry, biology, physiology, cookery, sewing, waitress course, laundry work, home nursing, practical hygiene and bacteriology, and home economics. In the second year, teacher-training is added. A 1 year Normal Course and a Housekeeper's Course are also given.

The Art Department contains the Owens Museum of Fine Arts, and offers Courses in perspective, composition, design, leather work, wood carving, metal work, china painting, sketching, etching, modelling, freehand and model drawing, and oil painting.

CHAPTER XVIII: AS TO INDUSTRIES.

The industries of New Brunswick cover lumbering, woodworking of various kinds, sawmills, planing mills, sash and door factories, boxes, spool wood, canoes; iron manufacturing from the mining and shipping of the ore, iron working including the manufacturing of engines and boilers, foundries, axes and edged tools, nails, fences, railway supplies, stoves, steam and gasoline engines; pulp and paper; brass works; brushes and brooms; can-making; leather tanning, boots and shoes; textiles, cotton and woollen clothing; foods, biscuits; fisheries, both shore and deep sea; mining, quarrying.

Under the Statute of 1900, entitled the Public Service Act, an officer of the Provincial Secretary's department is appointed as the Secretary of Industries and Immigration. His duties are "to collect and arrange facts and statistics relating to the agricultural, industrial, fishing, lumbering, milling, mining, quarrying, manufacturing and other interests and resources of the Province, and to adopt such measures for circulating and disseminating the same, as may be found best adapted to promote the progress of the Province and to encourage immigration from other countries." The Provincial Secretary may make arrangements with the Government of Canada for the collection and publication of information relating to the above subjects, and may also co-operate with the immigration service of the Government of Canada, or any other agency or institution, for the purpose of encouraging immigration from other countries to the Province.

SUMMARY OF INFORMATION FROM THE TESTIMONY.

Building Construction.

Carpenters favor Evening School, one stating that he thinks it would "eliminate the grog-shop." The hours of labor should be shortened in order to get the greatest benefit out of Night School. The subjects most needed are drawing, arithmetic, building construction, plans, and strength of materials; construction of different kinds of roofs, and hanging doors and windows. Roof construction is a most difficult subject and could be acquired more quickly by having a competent instructor who would work it out practically. The expert mechanic of to-day is more expert than in the past, but would improve still more by Technical Education. Carpenters need instruction in the use of the steel square for drafting and measuring. Putting a sloping or gothic roof is quite a trick to the average carpenter who doesn't understand the use of the square. A boy who understands house building technically would be advanced faster than one who didn't. The more proficient men are the more quickly they do the work, and this makes them worth more. A Correspondence Course is good, but not to be compared with Manual Training. One witness states his son took Manual Training and now wants to be a civil engineer, largely owing to this; it helped him find his bent.

Masons: Training in reading blueprints, arithmetic and strength of materials is most necessary for masons. Journeymen masons could learn from each other by talking things over in a schoolroom.

Plumbers: Plumbers should have instruction in the principles of sanitation, and should understand the dangers from leaking gas and liquid materials. It is better for the apprentice to have supplementary instruction while he is going as a helper rather than have it in a trade school where he has not such a varied class of work to observe.

Painters and Decorators: They need instruction in design, combination of colors, analysis of colors, and the scientific part of decorating, sign writing, fresco work, graining, nature of materials used, quantities and composition. Boys have no idea of the nature of the material they are using, and can do what they are told, but can go no farther than that.

Boots and Shoes.

No designing is done; that is a separate business. Most of the skilled hands are trained by experience in the shop. An evening class in drafting patterns, etc., would be helpful. The business is becoming more specialized every day, and the only way to train a boy would be a regular shoe factory where he could have a chance of using all the machines, combining theory and practice. The half-time system would not be practicable.

A foreman stated that the men are not trained in quick perception and have not been properly drilled to use their hands. It would be a good thing to have a school where they could see things as well as learn, and go from abstract to concrete. It would be no hardship for shoe workers to attend Evening School two evenings a week.

A manufacturer of larrigans says the work needs a quick eye and sure hand, but that the men learn all they require in the shop.

Confectioners.

A manufacturer of confectionery thinks that the present school system educates boys and girls away from the desire to learn a trade. He suggests that some of the present studies should be dropped, and children given text-books about various industries, processes, etc., with a view to impressing upon them that brains are needed in industry as much as in professions.

Harness-Making.

A harness maker said that machinery is used more than formerly. Manual Training would broaden a boy's mind and awaken his mechanical instincts, and would be of a benefit when he went to a trade. There would be no benefit to young fellows in knowing the process of currying and tanning. A boy had better learn about leather work as a fine art.

Metal Trades, Etc.

Boilermakers and Machinists: A general locomotive foreman in the I.R.C. shops said that the foreman is supposed to instruct the men in the principles of

things. They work from blue prints. Men need instruction in strength of plates in the boiler department.

A manufacturer of boilers, engines and machinery said his employees would derive much benefit if they could get instruction in drawing, reading blue prints and strength of materials. It would be good if they could see demonstrations. His foreman had noticed a boy with Manual Training experience, and observed how much more quickly he adapted himself to the work. The three R's make the best foundation for a boy's knowledge. A boy who begins this class of work at 14 or 15 makes a better workman, because he knows what he is going to apply his knowledge to, and with the knowledge obtained at school, he can educate himself with books and papers. A well educated man without gumption is no use in trade or commerce. A man wishing to better himself can always find opportunities, and if he has a foundation of reading, writing, arithmetic and grammar, he will acquire education without the help of the State. At the same time, Evening Schools would be excellent, and it would be a good thing if foremen could come together and learn from each other.

A brush and broom manufacturer says Manual Training would help boys in the woodworking and machinist line by training their eye, though very little skill is required in this business. Mechanical drawing would be very beneficial to machinists in this trade. Machinery has almost entirely eliminated skilled handwork in this industry.

The men in the Snowball Co. are developed right in the shops; the men are interested in the apprentices, because they all aim to be marine engineers and in order to pass the Government examination they have to have shop practice. They had never had evening schools; the men take technical papers and books, and the boys educate themselves.

Young fellows in I.R.C. shops will make quicker and better progress if they attend Evening School 2 nights a week. The best system would be to have a good instructor in the day time, and apprentices compelled to attend. Good demonstration shops would be needed to make them stay. A College course without practical experience will not qualify. The check time system prevents men from helping apprentices in shops. Men need education to run steam engine and mill machinery, and evening classes in mechanical drawing and engineering would help them, but need regular apprenticeship as well. A man cannot be a good machinist unless he has a knowledge of drafting.

A blacksmith says that Evening School for 2 nights weekly would be a good thing. A class in forging would be useful.

Blacksmiths should have instruction on the economical use of coal. When there is plenty of work in a rush and we get a big fire, the more coal used the more economical for the business. The main thing to know is how to get a good fire. It is cheaper to use best quality coal in the long run. Blacksmithing requires a trained brain as well as trained muscles; apprentices should have Technical Education along with practice. Where they used to hammer out a piece of iron for an article years ago, now they take the piece already rolled out about the right size and make the article out of it.

Foundrymen: Mechanical drawing is the chief subject a journeyman in a foundry should study; it would help him to know the conditions of smelting iron. Foremen need to be well informed regarding principles of business, study of metals, etc. They should take trade papers and study them. There is a great need for evening classes in the sheet metal business along geometry and Manual Training lines, designing and ornamental drawing. Moulders should know about moulding earths and sands and the difference between different kinds of iron; effects of phosphorus, etc. Ability to make sketches helps apprentices; they have to read blue prints to obtain promotion. Drawing in connection with Manual Training would meet requirements in many cases. Apprentices should go to Evening School while learning their trade, as it develops their intelligence, makes them keener, more alert, broadens their minds and develops them. The general educative effect of evening classes would be good, as it puts thinking faculties into operation and makes them more thoughtful and studious, developing their general intelligence, even if not teaching them anything definitely related to the trade. A trained intelligence is bound to develop a better workman. Manual Training develops faculties in a boy, and helps him to "find himself," as well as cultivating thoroughness, because he has to work by rule; thus he becomes exact and methodical.

A moulder said that Manual Training would help a boy in this line; inasmuch as the work requires great care and accuracy, it would be useful in that respect, as a careless man could never be a moulder.

Tinsmiths: Tinsmiths require training in reading blue prints, drafting and cutting patterns, and finding the contents of different shapes, etc. It is a hard trade to learn, because something new is always turning up; it is not necessary for a boy to be able to draw freehand and to scale, and to be good in arithmetic. It would be a good thing if plans from an architect's office could be shown to boys to familiarize them with plans. A boy would make the best workman by working in the day and getting practical education at night.

Printing and Publishing.

A foreman printer and compositor doubted whether an evening class would be much use to printers. A man can get the best instruction in an office and then finish off with something higher. Practical experience is the advantageous basis.

A linotype operator said that the International Typographical Union courses meet the needs of operators on all the latest machines, the only drawback being that they are so far away, and that men have to travel to the schools for instruction on machines. Printers need instruction in punctuation. The International Union is doing good work in introducing supplementary education.

A printer said that Evening Schools would be helpful in teaching artistic type-setting. A foreman would be the best instructor if he could express himself. Printers would like Technical Education directly connected with their craft, e.g. in designing work, job work, advertisements, the qualities of paper and inks, etc. In some cases the designing of advertisements is left to the printer, in others the designs are supplied. Printers need education in learning to know the relation of one part of type to another—how many spaces make an M-quad, for example.

Textiles and Clothing.

The best chance for education is the combination of day work and evening study. A workman cannot be made at school, but the ground can be prepared for a better workman. A man that took Technical Education with practical training also, would make a better workman. The cotton industry is much more highly specialized than formerly.

Furniture and Wood Pulp.

Cabinet makers and furniture manufacturers need lessons in drawing and strength of materials. In St. John the Manual Training instructor brings his class before him and on the blackboard explains by diagram, plan, elevation and section, how a thing is done, material used and all other requisites; then he gives all technical information possible. The boys know how it can be done, but still can't do it; then they are taken to the Manual Training department and with appliances and tools there they learn to do it, thus combining theory and practice.

A master mechanic in the Miramichi Pulp Co. says boys need training in figuring and drawing, and should learn to read blue prints, and know chemistry and mechanics. The more intelligent the workman, the more he can be depended on. The more skilled the men are, the better the work and the less the waste.

Home-Making and Housekeeping.

Housewives need to be skilled and trained. The need is felt for evening classes in house-keeping and cooking for women who work in factories. It would be valuable to teach factory women about buying and cooking and ventilation. Many women don't know the difference between the nourishing value of a pound of steak and a pound of boiling beef off the shoulder; especially those who have to earn their living; the cheaper meat can be cooked up to be made very palatable and can be enjoyed just as much as the more expensive meat. Instruction of that kind would be good for the housekeepers.

Welfare Work.

The reference room at the St. John public library is open to the public from 9 to 12 hours daily. The building cost $50,000, and was donated by Mr. Carnegie. It is maintained by the city. Pratt's list of technical magazines and books is kept on file. The workmen have asked for the library to be open after 8 p.m. and on Sundays. The library is used by the higher pupils of schools for essays and references.

Women have tried to have laws carried out for women and children in factories. A woman inspector is needed. The women in factories should be provided with seats, and have shorter hours.

The child labor problem is serious. Feeding of school children is advocated. Neither men nor children who are underfed should be expected to work.

Medical inspection of schools is much needed.

CHAPTER XIX: PERSONAL NARRATIVES OF TRAINING AND APPRENTICESHIP.

Wm. McGorman. Went to work at age of 10; blacksmith for 25 years; has worked in large establishments; now working with 10 others; making and repairing machines; learned trade here without any regular apprenticeship; formed night-school classes with 4 or 5 others who also needed it, and took up arithmetic. There are no apprentices here now; a boy comes in as a general helper, and picks it up. The shortest time to become a journeyman would be 3 years, most take 5. In his shop boy could learn horseshoeing; the work is welding, forging and shaping.

Blacksmiths would like to have a chance to attend a course of special training on business close to their own and would certainly attend. Takes "American Blacksmith." Business now requires much more skill than formerly, owing to increased wants of the manufacturing world. In some instances machinery has increased skill, in others it does away with it, e.g., when it replaces hand labor; now have to build machines to do work that used to be done by hand, but more skill is needed, as the work is of a heavier class, and it is necessary to know the nature of the metal, the stress it will stand, etc. No means of learning these things except by an occasional book, which gives a certain amount of information, but not enough. In order to be an efficient blacksmith, a man would need to have a thorough knowledge of arithmetic, freehand and mechanical drawing, a working knowledge of chemistry, and other things. Correspondence Schools presuppose public school education, and a man who has not that cannot understand the lessons, and terms used are harder to grasp than the lessons themselves. A night school teaching arithmetic applied to blacksmithing from the very beginning would be good; no man that has ambition and desire to learn would find it too hard to attend night school. Witness would be glad to teach a practical knowledge of his trade in night school.

Painters and Decorators. Witness went to Technical School in London, England, and got instruction in design and in combination of colors; lessons on analysis of colors; studied the nature of colors, and the scientific part of decorating, graining, sign writing, fresco work; found out the nature of every material used, and what it consisted of; the quantities that should be used for various colors. Boys jump into business and go along and don't get any idea of the nature of the material they are using, and they would not know what color to use for different rooms, facing north, south, east or west. They do what they are told but don't go any farther.

Arthur Stockall, foreman blacksmith, *I.R.C.* Got some special training while a young man; owes position to training received in Nova Scotia under Mr. Johnson, Superintendent, who used to take his boys and show them a locomotive with all its parts cut out of No. 12 plate iron, and give them a lesson every Friday afternoon with the locomotive in full action, explaining the various parts, their relation-

ship and process of working. By means of a thermometer he showed the rise of temperature and the relationship of heat and coal in raising steam. Another thermometer showed superheating. Stockall took these lessons while a journeyman blacksmith at Windsor. Mr. Johnson turned out some of the best mechanics by that means. It would be a splendid thing for apprentices to learn the relationship of the different parts; they don't know after 3 years the relation of coal to steam raising and from his own experience, Stockall is satisfied that technical education is needed. The bent of the boy's mind should be found away back in the Public School, so that he can be trained in that direction. The foremen haven't time to teach the boys, with 16 or 17 apprentices and a large shop to attend to, and he is too exhausted to do so, even if he had time. When Stockall was a young man he sketched out problems at home, and figured out the best methods of constructing them, but it started with Mr. Johnson and when the time came for different work he was never at a loss. If a man has the disposition as well as the mental capacity well trained, he will be at home in special work when the time comes, especially if he can get someone to start him right.

David McGahey, in charge of a department of woodworking factory, Fredericton, took a bookkeeping course 10 years ago, and read technical journals.

Moses Mitchell, general builder, Fredericton, learned carpentering and also worked as a mason. Was never trained to read or make plans, but picked it up.

John O'Neill, foreman in wood-working, Fredericton. Had Manual Training half a day a week in Commercial School; also took Architectural Drawing course in International Correspondence School.

Denis T. Shea, plumber, Fredericton. Served apprenticeship in plumbing, 8 years altogether; read books of American Correspondence Schools, also trade journals.

Arthur L. Nicholls, Superintendent, Monarch Manufacturing Company, Fredericton, manufacturing acetylene generators and appliances. Studied in country school to 10 years of age; took International Correspondence Course; studied at night, Mechanical Drawing and Mathematics.

Andrew G. Downey, foreman, bottom finishing in a stove factory, Fredericton. Was a tanner and leather finisher; attended and taught night schools in New Brunswick.

Albert Smith, foundryman, Fredericton. Practical machinist; served regular apprenticeship for 4 years, beginning at 16; took part of International Correspondence Course in Mechanical Drawing.

W. Allen Staples, electrical engineer and contractor, Fredericton. Educated at St. John school, and went to Boston Technical 3½ years; went to night school in school of design at Lowell Institute.

Frank Furney, Sackville, N.B., foreman in Enterprise Foundry; served 3 years as moulder; worked as journeyman for 25 years; read Moulders' Journal.

John Ferguson, Sackville, N.B. Harnessmaker for 20 years; picked up the trade; no apprenticeship. Takes 3 years to learn the business.

Walter Appleton, Moncton. Assistant Superintendent of Motor Power I.R.C. Shops. Gained position by night study.

Charles W. Blakeney, Moncton, Machinist I.R.C. Had regular apprenticeship no evening classes, but read up.

APPRENTICESHIP.

Competent labor is scarce in Chatham; not enough men learning the lumber trade. Nearly all skilled labor in Sussex is imported, chiefly from Ontario; I.R.C. shops in Moncton have more applications to be taken on as machinist apprentices than they can accept; 75 on waiting list. "Cotton factory employees were formerly brought from England; now our own people suffice." There is sometimes a dearth of labor in Woodstock; plenty of work for the industrious, but immigrants from Great Britain are not successful. Lack of labor increasing because of the call to the west.

A lumberman says no difficulty is experienced in getting skilled men for lumber trade "for this is a lumbering country;" on the other hand, he deplores the scarcity of common labor due to westward migration and the movement to manufacturing towns.

Skilled men are not plentiful in wire nail trade in St. John. One witness says that business in Canada cannot survive unless we have a large increase of skilled workers.

The efforts of skilled men are called for everywhere. Men acquire skill first by gaining knowledge and then by being set to see how that knowledge can be applied. Knowledge helps immensely in improving skill. Skill is rather blind without it. If men in any industrial pursuits attend the evening classes or take a Correspondence Course they will get a knowledge of theory, and in their work they will get practice, and put both together. While knowledge is power, skill—in the sense of applied knowledge—is knowledge raised to the fifth power.

For boys and girls who work at trades, drawing is a sort of universal language and Manual Training exercises should be in every Public School. Evening classes for special industry according to town or section should be held.

Boys might have school in employer's time for 2 or 3 hours in day time rather than night school. Witness favors half-time system on ground that boys would be too tired for night school.

Firms get apprentices locally; they learn in shops under journeymen; then go away and earn more than they might by staying. The chief difficulty is that apprentices change about; not bound to stay in one firm; 80% of boys leave before finishing apprentice period. Boys need practical men to teach them, often after the second year they go driving delivery waggons.

Boys are very unsettled, do not care for education or regular employment; it is easier for them to earn money now than formerly. No regular apprenticeship; boys come and go. No apprenticeship indentures now.

Young men should serve 4 or 5 years. If manufacturers were more far-sighted they would insist on having apprentices. In moulding shops in Sackville there is one apprentice to every 5 men—no regular instruction, but foremen and journeymen are supposed to look after apprentices. Witness advocates revival of strict apprentice system, and says he does not think boys would mind. Another considers apprenticeship preferable to night school for boys to learn work.

Harness-maker states that it takes boys 3 years to learn business in shop. One witness thinks it easier than formerly to learn business in shop. Under old apprentice system men were more skilful.

Apprentice system in shops in Sussex, some boys have signed indentures, it is hoped others will. In blacksmith trade, boys start at 20 or sooner, but they are not bound and leave when they choose; paid from the start.

Printers' Union looks after its own apprentices, and has laws as to age, etc., and protection of employers and apprentices.

The Typographical Union has a superintendent in various parts of the country, and examinations for apprentices. In some shops foremen do instruct apprentices, but a compulsory night school would be desirable in addition.

Education is not enough, actual shop practice is a necessity. Apprentices do not appreciate personal lessons. Apprentices need Trade Magazine to read up. I.R.C. have special instructors. A good demonstration shop like New York Central is wanted. Apprentices should be encouraged by supplementary courses. Employers and labor unions should pay more attention to apprentices. Witness would give apprentices a bonus and certificate at the end of his time; would apply this system to all trades. Journeymen do not show apprentices; boss or foreman has not time, employer does not care. An apprentice has a poor chance to learn, too much menial work to do. Witness says it pays to keep operatives on one machine. Witness taught himself what he was allowed to learn as apprentice. There is too much specialization, owing to machinery, and boys fail to become mechanics. Boys do not get instructed in shops; men will not teach them for fear of losing jobs.

Apprentices, if they can go to night school, could be taken on at 14, otherwise not till 18. Most witnesses favor boys attending night school, one stating that in winter when business is slack boys could go to night school. Only one witness not in favor of night school for apprentices.

Mr. A. T. Sollows, Manufacturer of Neckwear, St. Johns, N.B., deals in a letter with the best way of procuring skilled labor and holding it in the vicinity. He thinks a large number of the manufacturers who employ young men and women in their factories do not favor education by technical schools for such classes of work, although they must have a common school education. He feels that the branches of education varied to meet the requirements of the different enterprises of the city could not be put in. Therefore, in such cases as box factories, cotton mills, clothing and fur factories, novelties, carpenters, plumbers, masons, stonecutters, and a number of other trades, he suggests that the Government issue certificates for the firms employing apprentices and that a bonus be given to each individual who will sign a certificate to learn the trade which he or she is inclined to learn, the term of years of learning such trade being stipulated in the certificate, and that, at the end of the term, the Government provide a diploma, with the manufacturer's certificate of the term he or she may have served with recommendations attached.

The bonus idea is simply this: at present the manufacturers in such branches as above mentioned advertise for help, and in nine cases out of ten the classes who respond are ignorant of their work. The manufacturers cannot afford to pay

wages that would be encouraging to employees who feel that they can earn more at other classes of labor which are not staple. In this way they go on till in the end they know nothing, and are of no service to a manufacturer in the matter of skilled labor. The suggested bonus to such apprentices may induce them to stay their out term, knowing they will receive something, viz. the bonus and diploma, signifying a well-learned trade.

The writer thinks this suggestion will be beneficial to the city, the Dominion of Canada, and the employees at large, and also that it will provide more skilled labor in the different branches of manufacture.

CHAPTER XX: AS TO AGRICULTURE.

SECTION 1: WORK OF DEPARTMENT OF AGRICULTURE.

The Department of Agriculture is under the management of a member of the Government who is termed Commissioner for Agriculture. The Commissioner has the same rank and status as a Minister of Agriculture in other Provinces. Special funds are granted by the Legislature for this Department, the appropriation for 1910 having totalled $53,815.00. Practically all the work of the Department is educational.

The work of the Department of Agriculture covers the following:—

1. Administration of the work of 90 Agricultural Societies:
   - Improvement of stock.
   - Improvement of seeds.
   - Buying of fertilizers.
   - Holding of exhibitions.
2. Encouragement of Dairying:
   - Two Dairy Superintendents.
   - Dairy School.
3. Encouragement of Horticulture:
   - Provincial Horticulturist.
   - Illustration Orchards, Orchard meetings.
4. Encouragement of Stockraising:
   - Importations.
   - Assistance to importers.
5. Extension of Markets:
   - Assistance to open up Cuban markets by provision of warehouses at St. John and Havana.
6. Farmers' Institute and Educational Work:
   - Speakers sent to meetings.
   - Judges and speakers to local exhibitions.
   - Assistance given the Provincial Farmers' and Dairymen's Association to hold general gatherings of farmers and to obtain good authorities for such meetings.

Grants are made to Agricultural Societies for the improvement of live stock which they import for their members; for the buying of seed in wholesale quantities and selling at cost to their members; for holding exhibitions, etc. The Department has in some cases made direct importations of live stock and sold them at auction. This year the policy is to secure individual importers to import and sell stock, the Government paying their expenses on arrival and advertising the sales, finding auctioneers and looking up customers, but not giving any actual bonus. The Government has inspection of such stock.

Latterly not so much has been done in bonusing cheese and butter factories as formerly, only three small bonuses being given in 1910; but two Dairy Superintendents devoted their whole time to addressing meetings of farmers, testing milk and cream for the factories, inspecting cheese and butter, and generally trying to help the factories and dairy farmers. One of the Superintendents at the request of the St. John Board of Health examined the dairies from which milk was sent to St. John and gave certificates.

Some years ago the Government arranged with a company of farmers at Sussex, for the use of their building and machinery for Dairy School purposes and during March and April a Dairy School is conducted, the students having the benefit of the manufacturing operations carried on by the Dairy Company during the school term. This Dairy School was started by the Dominion Department of Agriculture and was taken over by the Province six years afterwards. Those who attended are chiefly buttermakers and cheesemakers in factories. Special courses were put on for boys and girls, but these have not been attended in large numbers.

In 1909 the Government at the request of the Fruit Growers' Association appointed the Provincial Horticulturist and appropriated $2,500 for the encouragement of horticulture. Meetings and orchard demonstrations have been held throughout the Province.

Illustration Orchards.

Some years previously the Government had established a number of illustration orchards, making a contract with applicants in different sections for planting one or two acres of young trees which were cared for by the Department so as to test the suitability of varieties to different localities and demonstrate what the best orchard practice would do in apple and plum growing. There has been quite a general planting of new stock, the greatest drawback being that varieties are selected in a haphazard way and a good deal of the stock supplied is not fit to plant, there being no Government supervision of nursery stock. Neither of the two nurseries has been conducted with very much development and there appears to be a very great need in this direction. Trees are very healthy and productive in this Province.

The Department accepts not more than two applications for any locality for setting out not less than one acre. The owner prepares it in the previous season by thorough cultivation; the Department supplies trees and furnishes a man to oversee the planting, the owner supplies labor and agrees to care for the orchard for ten years as instructed by the Commissioner for Agriculture, all products being the property of the owner.

Directions are given for planting, for cultivation once a week, cultivation to be continued till about 10th July; then to be seeded with clover, which is to grow till frost kills it; ploughing in spring. Before frost comes, trunks to be wrapped; a dressing of manure to be given once in 2 years at least and worked in with cultivator. Spraying is to be practised intelligently and regularly. So far, but little thorough work in spraying has been done, and much damage has resulted, which might have been avoided by systematic spraying. Detailed directions

are given for spraying every variety of fruit and vegetable, also for thinning trees for profit.

Farmers' Meetings.

The Farmers' Institute System, as it exists in Ontario, could not be worked in New Brunswick for several reasons, so that the name Institute was dropped and an effort has been made to obtain the same results from the Agricultural Societies by sending them speakers. Last year there were 128 meetings at different seasons, the average attendance in the fall being 43 farmers and their wives and the summer attendance being 82. The orchard meetings were held in the orchards themselves, but no meetings were held on farms where crop competitions were carried on.

Report of Provincial Agricultural Commission.

The Government appointed a Commission to investigate agricultural conditions.

The report of the Agricultural Commission, points out that the methods of agriculture generally in vogue in the Province, the small returns, the lack of live stock and the absence of intelligent interest on the part of the growing rural population in the opportunities about them, show an urgent need for some change in our educational system, so that country children may get some information on what is to be their life work. This is the only way to check the stream towards the cities. The rural children of New Brunswick need this instruction as much as any, but the first essential is that teachers should be trained to give the instruction. More provision should be made in the Normal School for this training, and teachers should pledge themselves to teach three years in the Province before leaving. Nature Study of a practical and homely kind in the Public School should be followed by agricultural teaching in the High School, or, better still, special schools in every county. A Technical School for Agriculture is imperative where three-fourths of the population will pursue that calling, and an Agricultural College is not adequate to the needs of more than 5% at most of the farm people; the rest require less advanced training, which would enable them to take better advantage of the educational aids they have, including the College. New Brunswick now uses three first-class agricultural colleges in other Provinces for its students, and the Provincial Government pays the transportation expenses of the students. Students can use these colleges at less cost to New Brunswick than if one were established in New Brunswick. The time is coming, however, when New Brunswick boys will be crowded out of these colleges, and preparations should be made in anticipation of this.

The Normal School should be extended in the direction of centralizing University, Normal and Agricultural instruction, so that teachers could be utilized in each department, thus saving the expense of two staffs. Short Winter Courses are most beneficial to older farmers, and these should he held at Fredericton

Short courses in a modified form, especially in dairying and poultry, could be held at local centres. A poultry demonstration plant might be started. Poultry raising and pure bred dairy stock on the Provincial Hospital Farm might be of educational value and assist in supplying the demand, in addition to the needs of the Hospital.

A Provincial Horticulturist is needed, to develop land for the proposed Normal School extension and promote horticultural and fruit growing in the Province at the short courses and Normal or College courses. This man might combine the supervision of Illustration Orchards, etc., with his duties.

Travelling Instructors in Dairy and Live Stock would be of great advantage, as the farmers who most need the instruction are the most difficult to reach.

Agricultural journals are a great factor in agricultural education, and agricultural societies should see that all their members take them. A library of standard books should be collected.

The conditions of agricultural credit in New Brunswick are not favorable to the farmer who needs small amounts for short periods. A co-operative credit system should be started. Co-operation in buying and selling would also be most beneficial.

Illustration Farms conducted by the farmers themselves, from which records could be made public and people invited to examine for themselves, would be very helpful, results reached by Government Institutions being not very well heeded by farmers, who say that the Government with money behind them can do what ordinary farmers cannot. These Illustration Farms could be used to put into effect the results of research work done at the Government farms and, if situated near a High School or Consolidated School, could be made of great use.

SECTION 2: INFORMATION OBTAINED FROM Mr. W. W. HUBBARD, SECRETARY FOR AGRICULTURE.

School Gardens have done great good, particularly in the case of the Kingston School, in inducing a considerable number of young men to pay particular attention to agriculture and pursue their studies at agricultural colleges; and already farmers are taking more intelligent interest in agricultural training and there has been a decided change in the attitude of farmers in the Province as a whole, Institute speakers receiving more intelligent appreciation. The work already done among farmers is having decidedly good effect and should increase in greater ratio in future.

Last year 40 young men from New Brunswick attended agricultural colleges outside the Province; 27 went to Truro, N.S., the Government paying their railway fare both ways, so that New Brunswick students have an additional advantage over those who have to travel any distance within their own Province; 10 students went to Macdonald College, Que.; 3 attended at Guelph, Ont.

If New Brunswick had equipment for short courses equal to that of Truro, N.S. no doubt a large class could be worked up; but the college at Truro is very willing

that New Brunswick should send all the students it can and undertakes to put on a special course for these students if the number is sufficient to make it worth while. As there is practically no difference in conditions between the two Provinces in the matter of live stock the course at Truro, N.S., would be equally suitable to New Brunswick. When the number of short course students at Truro reaches 300, as Mr. Hubbard thought it would, it would be desirable to establish such courses in his Province.

As to getting up a fair attendance in the afternoons or evenings at central schools with an Illustration Farm alongside, Mr. Hubbard thought farmers could be gathered in the summer evenings from five to six o'clock onwards, and that there was no real reason why farmers should not attend from five to eight except the matter of distance from the centre; but there is always a disinclination among men who have worked hard all day to work still further at night. If they could be made to think it was an entertainment it would be different. He thought courses on summer evenings for two hours twice a week would be generally supported if properly worked up and held at convenient places. Even if only ten men attended it would be a good use of money, as ten men interested in each locality would have a perpetual influence.

It would be economical and feasible and also add to the interest if there was a Summer School for teachers at centres and classes at the same place for farmers on agriculture, thus identifying the two; and if there was a school garden there it would interest the farmers in school studies and work. The Department would be sympathetic and co-operate towards anything of that kind.

Farming has improved in some sections, but the great lack is live stock, and there has been improvement throughout the Province generally in that regard. The output of cheese and butter factories since 1903, the largest year on record, has fallen off considerably; but the introduction of the hand separator has led people to take care of the cream at their farms, make butter, and feed the skim milk to calves and pigs instead of sending the whole milk to the factory as formerly. At one time the supply of beef brought considerable profit but this has shrunk to a negligible quantity.

Students go to Truro, N.S., by the Intercolonial Railway and Mr. Hubbard thought it would be very nice if the Government would carry the students free; it would certainly stimulate the Provincial Government's efforts to get more students, as the money now expended on fares could be devoted to canvassing. He thought it would be a good policy for all the railways to help whatever tends to increase traffic for them through increased production. The Department had always had the sympathy and very often the help of the C.P.R. in any of their efforts but the Inter-Colonial had been hard to approach, having definite, set rules and not being able to do anything without getting special authority.

The New Brunswick Government has been contributing an Instructor for the full Dairy Course since the Agricultural College started in Truro, but that is the only contribution it has made. The generosity of the Nova Scotia Government might be pointed out as an example for the Dominion Government to follow, though New Brunswick had Provincial pride and did not wish to ask for alms.

One reason for the falling off in the live stock and dairy business is the great scarcity of labor, the trek of the young men to the west and particularly the very bad effect of the harvest excursions, against which protests have been made by the Department for the last two or three years. In some cases men have gone from New Brunswick leaving their crops in the ground for some one else to harvest, and they have never been harvested, and these men returned much poorer than ever by reason of the waste on their own farms.

Many farmers are now paying $30 or $40 per month for labor and in some cases cannot get it, and the harvests are suffering to-day from lack of labor. Mr. Hubbard thought that the harvest excursion plan should be reciprocal, and that there should be a $10 fare from the West to the East, which was suffering as much as the West from want of labor. Diversified farming with employment all the year round would help to induce a reasonable measure of immigration. No doubt reports from these Illustration Farms would be good immigration literature. The climate and prospects of New Brunswick are not well known abroad compared with the attractions of the West, as adequate means have never been taken to advertise.

The Department requests students who have attended the Truro Agricultural College to send in their impressions as to the benefits received and also suggestions for the improvement of agriculture in New Brunswick. These letters contain many helpful hints and tend to increase the efficiency of the work of the Department.

SECTION 3: EXTRACTS FROM LETTERS OF STUDENTS WHO ATTENDED THE SHORT COURSE AT TRURO, N. S.

T. H. Manser, Aroostook Junction, Victoria Co.

I was much pleased with the course and only regretted that more from these upper counties were not present to take advantage of it. I think the majority of farmers here are making a mistake selling so much low material off the farm. I have gone quite largely into potatoes, which are a very risky crop. The greatest difficulty farmers have to contend with is the scarcity and high price of labor. I have never tried foreigners as they would not understand our conditions and would not suit me, as I only need one permanent man. I have dropped dairying since the factory failed in Ondors, as it is impossible to get indoor help. Many have gone into potatoes, and are buying large quantities of expensive commercial fertilizers which this year will take the whole crop, and in many cases more, to pay for them. It might be a help if we could get a factory started on the cream gathering system as it was done in Woodstock the past season. It would be a good thing if you could send Mr. Moore through the country districts here on the seed question and it is a question which every farmer here is interested in. We received instructions at Truro which proved the great advantage of grading up and using the very best seed. This year I intend planting only large potatoes of good shape.

Wm. McDougall, East Glasville, Carleton Co.

I think the college at Truro is a great help to the young men who attend, as it gives a course of instruction which he cannot get at home, and he can also get practical information there that he can make use of on his farm. Farming would pay better if the farmers would adopt more modern ideas and get out of the old rut. The difficulties the farmers here have to contend with are the cost of transportation, the charges of the "Middle Men," and the scarcity of farm help at certain seasons of the year. If more settlers could be induced to take up the vacant farms in Aberdeen it would help the situation.

Rev. J. S. Gregg, Young's Cove, Queens Co:—I was able to spend one week at Truro. I enjoyed the classes very much. Already I believe an interest has been awakened in agricultural interests within my parish. I am well satisfied that these short courses are better than anything yet undertaken for young farmers. I am sending a letter to-day to Weslyan Church Paper, Halifax, N.S.

Clarence Robinson, East Glasville, Carleton Co.

I think the college at Truro gives a good course of instruction for the young men, and older ones too, who intend to farm, as we get practical information there that we cannot get at home. The principal difficulty farmers have to contend with is the cost of transportation to markets.

W. H. Starkey, Starkeys, Queens Co.:—I took in all of the courses and thought they were all right, as I think that every farmer should have a little of that kind of live stock and raise a lot of turnips, grain, potatoes and corn. I have a silo built and have been growing corn two years, and find it a great saving on hay, and also it seems to be good for all kinds of stock. Our land is lacking of humus and I think we will have to get growing clover and plough it under and try and build up the soil. I also think we should grow more green stuff for our cows to feed on after grass gets short. I think we should keep more pigs, also haul in lots of black muck or marsh mud and all of the rough stuff we can find. In the woods we gather leaves which we find a splendid thing. We have to get to work at something soon or else get out or starve, and stop buying so much feed from the West.

Henry Kirtley, Welsford, Queens Co., N.B.:—At the short course I spent a very profitable time. I received valuable information in regard to farming in general, and feel amply repaid for my trip. Dairying is my first aim, raising as much pork as I can profitably handle. I think a great deal of the farmer's difficulties rest with the farmer himself. If the farmer would give a little more careful study to his work, carry on a more systematic rotation on his land, more intensive cultivation, and keep only the best animals that can be had to suit his needs, I do not see what is to prevent him from getting a comfortable living.

J. H. McCrea, Shannon, Queens Co :—The course I attended is a grand institution. I am very sorry New Brunswick has not a similar school to educate the farmers. While I must commend the Government for the steps they are taking to encourage farming, I think we should have just such a school in N.B., for greater interest would then be taken. Of the 40 long course students I learned that only one was from New Brunswick; I think that is a very small per cent.

One of the difficulties we N.B. farmers have to contend with, (I can only speak for myself) is the production of a sufficient quantity of hay on high-land farms. I would not consider it any trouble to farm if I could have one head of cattle for every two acres of land I possess, which is what they told us at the College was necessary. This difficulty can be overcome, to a certain extent, by the growing of roots in large quantities, or corn if it could reach a state of maturity.

Harry C. Cochrane, Bloomfield Station, Kings Co.:—I liked the course fine; think it is just the thing for the farmers of the Maritime Provinces but I don't think it is advertised nearly enough; it ought to be advertised in the daily papers a while before it opens, for the majority of farmers know nothing about it. The chief difficulty of farming here, I think, is that the majority of farmers do not know enough about scientific farming.

G. F. Flewelling, Perrys Point, Kings Co:—I would like stock raising better than any other branch of farming, and it is the branch of farming that is most needed in the Maritime Provinces in my idea. There is certainly on the average a very poor lot of live stock. I think most of the difficulties of farming lie with the farmers themselves. Most of them, instead of trying to help their neighbors or learning something from them, are finding fault with everything they do, whether it be good or bad, or whether it be on the farm or in the school, church or other affairs. It would be wiser for farmers to drop this method and co-operate more, by forming agricultural societies or by clubbing together and buying some improved machinery which would save labor and do the work quicker and better. One man I met at Truro was getting up courage to go back, as he knew he would be the laughing stock of his neighborhood when he got home; he said that he had almost to skip out at night to get clear, for the people around thought it an awful thing to go to a college to learn how to farm. "Why, anybody can farm." I think the farmer should have as good an education as anybody, especially in bookkeeping, so that he can keep an exact account and tell just where he stands. Ask a business man what each branch of his business is doing, and which is doing the best, and he can tell you exactly where he stands by looking at his books. Ask a farmer where he stands or what he is doing and he has no idea. This is where the business man gets ahead of him. I think that great stress should be laid upon education of the future farmers. Again, the business men work together, and know what each other are doing, while the farmers try to keep what they are doing to themselves. Thus it is that business men are so much more wealthy than farmers, as they see what others are doing and the advantage of improvements that may come out. Until the farmers see their folly and try to change their ways, I don't think they will get along as well as they might.

Ours is rather a poor and rough part of the Province for farming, but still I think the farmers could do better if they only go about it in the right way.

The course at Truro was everything one could look for. It was practical, and every branch was carried on so that one could not help receiving a great deal of benefit from it. It was certainly a fine course, and I really do feel sorry for those unfortunate enough to miss it.

H. Allen Dickson, Jubilee, Kings Co.:—I consider the course at the Truro College a great benefit for the length of time spent there, and if more farmers would take advantage of it they would find it a great benefit. The principal difficulty our farmers have to contend with is need of better knowledge of the fertility of the soil and management of the dairy herd.

W. P. Fowler, Hammond Vale, Kings Co.:—The course of instruction at the Truro College would be hard to beat. It has been of great benefit to me, so much that if possible I intend taking the full course beginning next fall. The time was so short that the instructors could only hit the high places, so to speak. The courtesy and attention which the short course men received at the hands of Prof. Cumming and his staff were boundless. I propose to farm mainly to beef and draught horses. I believe there is more money in dairy cattle if one is in close touch with a cheese factory and creamery, but as I am not so situated, I will have to do the next best thing. I should like to keep sheep, but on account of the number of dogs it is impossible here. Some of my neighbors do, and every year they lose a good percentage of lambs and ewes. I consider weeds, the greater part of which we import from Ontario in clover and grass seed, to be one of the greatest drawbacks to our New Brunswick farmers. Also from what I have seen I believe the majority of our farmers do not know how to care for and feed live stock correctly; I did not before I went to Truro. If the other fellows know, there are mighty few of them that practise their knowledge. I should think that these and all other troubles which we farmers have in N.B. could be overcome by our Department getting busy and starting a College and Farm on lines similar to those at Truro. I think that the move would be backed by every farmer with brains in the Province.

W. G. Campbell, Salisbury, West. Co.:—The course at Truro is just the thing that we farmers want. It gives a man a chance to see improved methods and get new ideas, and it impresses a man with the importance of more thorough work in all lines of farming. I intend to raise some new turnips, clover and grain-feed, the latter to be fed in August and September and improve the dairy herd. The chief difficulties in farming here are lack of knowledge and lack of interest, and not taking good care of our stock, especially the cow. I think it would be well to advertise the College at Truro more, for once a man goes there he will take more interest in his work of farming.

Edgar G. Eagles, Monteagle, West. Co.:—I found the short courses at Truro very helpful, and it is what every farmer should attend if possible. My intention is to follow dairying and keeping pigs. I also will keep some sheep, and intend to raise quite an amount of green feed to keep up the flow of milk when the pastures get short, and turnips to feed through the winter, and also raise more clover, hay, and feed all the crop on the farm in order to build up the farm. As to difficulties, I think a great many of our farmers are not interested in agriculture, and carry on too many side lines, do not keep records of their cows, do not know which ones pay and which do not. I think a farmer should keep a record of all his work the same as a business man. One great difficulty is that our farmers will use a scrub bull in their herds because they think it cheaper than a pure-bred.

I think there could be some lectures given to farmers to stir up interest so they will see the necessity of attending the short courses at Truro.

Lee Tingley, Moncton:—The course of instruction I attended was principally in live stock, and I got an insight on many points, especially in regard to the dairy cow, one of the most essential things in New Brunswick. I think a few pure bred cows in each district would help farmers to work into a better lot of stock, as we now have mostly a mixed class of cattle of a general purpose type.

Joseph W. Steeves, Lower Coverdale, Albert Co.:—The course held at Truro was as beneficial as could be expected. I think the cattle judging was very instructive. My intention is to raise beef cattle. We also have a good chance for fruit growing. I do not think that our farmers have many difficulties here. The chief fault is in the people; they are not up to modern agriculture. A great difficulty in farming is the in cost of labor.

SECTION 4: OTHER TESTIMONY AS TO DAIRYING.

Sussex in the chief centre of the dairying interests, and the co-operative dairy there is working very satisfactorily, nearly all the farmers taking milk and cream to the factory. There is co-operation in the sale of milk. The Sussex Milk Factory is managed entirely by farmers. There is a voluntary board comprising a president, vice president and twelve directors who employ a secretary and manager and butter makers, profits being divided according to the percentage of butter fat in the cream. The separator has largely changed the work of the factory. The farmers, with the exception of fifteen, use hand separators and bring in the cream two or three times a week; several patrons bring in milk. This is an advantage to the farmer because the skim milk is fed warm to the calves and pigs as soon as separated, and these animals increase very much in consequence.

There are about forty cheese factories and creameries in New Brunswick, the majority being in King's County, where about 70% of the butter is made.

There is a growing idea that dairymen must apply themselves scientifically, that there must be intelligence at the work, in order to make the most out of their labor. In some cases there is not the active help the inspectors would like in the way of the younger generation setting to improve themselves.

During the season of 1910, twenty-two attended the dairy school. The courses consist of instruction in butter making, cheesemaking, handling of cream separators, milk testing, both for butter fat and instruction in handling power separators, also the special lines of farm dairy work which take up butter making and cheesemaking. There are two separate courses that run about a month in the spring and some students take both. These courses are longer than the short dairy course in Truro, and, while the staff here is not as complete as at Truro, they can give more practical instruction. The equipment and live stock are limited in Sussex as compared with Truro.

In the fall of 1909 Inspector MacDougall took up experimental work in rural schools and found it worked well. He arranged two circuits, one of nine schools and one of ten schools, to be visited in a week, teaching such ideas as boys and girls should know. He started out with the idea of allowing all boys and girls in grade 3

to leave the classroom during the lectures, but he found some who would not miss them for anything even though they did not understand all that was said. In some districts even the small boys and girls would answer questions relating to the preceding lecture, and also ask some quite difficult questions; in other districts very little could be got out of them and one would think the parents had never discussed general dairying or farm knowledge. It is the intention of the Government to continue this work. Even those boys and girls could locate trouble at home, when there was trouble at the factory, because of ideas which were discussed at those lectures; in that respect they would be of the greatest assistance. Under Mr. MacDougall's instruction boys and girls would bring in samples of milk, prepare the sample and ascertain the butter fat in it. Unless the hand separator is handled properly it may mean the losing of a lot of milk in the course of a year, but by the simple test given in the lectures the children can ascertain whether the separator is operating correctly or not. The lectures have been arranged so that the scholars can connect them with the work at home and, thus school and home re-act upon each other.

The dairy lectures for rural students as given by Inspector MacDougall cover the following:—

(1) Milk—composition, with sample of each constituent and its function in building and maintaining the body; demand for clean milk and results of unclean milk; study of sources of objectionable infection.

(2) Babcock Test for Butter Fat—demonstration of samples of milk and cream brought in by students; principle of test; sample of churned cream and of melted butter in over run test tubes; use of Babcock test, (*a*) in herd improvement, (*b*) in ascertaining losses in skim milk and buttermilk, (*c*) in teaching boys and girls importance of accuracy and method.

(3) Cream and Butter—essentials in production of good cream; skimming by gravity or centrifugal methods; conditions contributing to thorough skimming; ripening of cream; factors which influence the churnability of cream; what is good butter?

(4) The Dairy Cow and Her Feed—origin of dairy breeds; difference in amount of butter fat on same feed; how to find the unprofitable cow; some cow records; conditions favorable to money making; feeds suitable for milk production; profits from feed above maintenance rations; growth of legumes, clover, alfalfa, etc., inspection of clover and alfalfa roots in alcohol showing nodules formed by nitrogen-gathering bacteria.

(5) The Dairyman—achievements of the reading, thinking dairyman; need for head, hand and heart work; dairying in economical agriculture; use of good agricultural papers, cheese factory and creamery statements; what to observe and how to help at home.

SECTION 5: OTHER TESTIMONY AS TO POTATO CULTURE

Potatoes constitute an important crop in New Brunswick. One witness in Fredericton who was an extensive potato grower gave some interesting testimony. In a good year he said he averaged 100 barrels to an acre with three bushels to a

barrel; that is a large crop. On drained land he had been able to increase his crops very much, having obtained as high as 200 barrels. He believed he could increase his crop with the short rotation—potatoes, hay and oats; it would suit well to have the hay for feeding cows. He did not know that he would call manure very valuable for potatoes, as he thought them more likely to rot if grown in manure than grown with fertiliser; that is the impression of men who have made a specialty of potato growing, and who have always employed manure.

At present there is no one local market for potatoes. The price for the early potato is $2 in St. John, and $1.80 in Fredericton. 50 barrels would be about the average crop of early potatoes, but that has nothing to do with the Fall potato. He had never found an early potato that was prolific; but the Irish Cobbler, which is our earliest marketable potato, has been developed by selection by George Fawcett of Sackville who had shown witness a very big hill that must have had 14 of those potatoes got from 3rd year selection, whereas a number of hills not selected showed only perhaps 5. After that visit witness determined to do some selection of the potatoes for planting.

Farmers had visited witness from quite a distance to see his method of growing potatoes, especially because the tops remained green so very long. There were two reasons for this. Bordeaux mixture kept the early blight off, then cultivation kept them growing. Many farmers have copied those two methods and have doubled their acreage in four years, although not following the rotation. Witness could see a marked improvement all over New Brunswick in growing potatoes.

Mr. Clements said it was hard to strike an average of price per barrel for potatoes, because he had just entered a new market. Up to the Spring of 1910 he believed the average price for a barrel of potatoes in New Brunswick had been worked out at average for 11 years of 97c. at the shipping point, so a good average crop of 100 barrels to the acre would give $97, which leaves a big profit and the land is being improved. There is an unlimited demand for the product, and New Brunswick is getting the best name for potatoes.

There is no educated labor to be had, for a $1 or $1.50 man takes a trade or profession, or else he is a farmer himself. Mr. Clements' trouble was that he could not get a foreman, though he could afford to pay one just as well as a manufacturer could, and he would be prepared to give work the year round if he could get the right quality of man. Trained people were wanted. He believed boys of 16 or 17 would be of more value in taking care of potatoes if they had school garden training. He looked upon our schools at present as thought-producing factories which produce thought by processes that do not turn to agriculture, hence the schools make professional and not agricultural men. He believed it possible to train scholars in such a way and with such material that they would love the farm. He thought there was unlimited chance for a man to employ his talent in the management of crops and in leadership in his locality. At present no trade was so poorly worked as the agricultural trade.

A sample of what might be done is to be seen in what the great Burbank has done and in what young George Fawcett is doing down in Sackville. Fawcett took a couple of $700 farms such as may be seen around our back settlements with wire grass showing all through, and this year he has 25 acres of potatoes and has

the oat plot divided into sections with samples of seed he is going to pick and choose from.

Witness had never had time to take a course in an Agricultural College, and got all his experience from working with the land himself. Mr. Fawcett on the other hand is a graduate of an Agricultural College.

Witness had met young men that had attended the Truro College the last two or three years and could see the improvement in them. They certainly taught him some things in the line of experiments that they had been able to work out; and for the things that he had found correct they had been able to give reasons why they were correct. He would call that the big part of farming—knowing the cause—his own trouble was that he could find out a thing but did not know the cause, and had to grope his way more or less.

CHAPTER XXI: TESTIMONY AS TO FISHERIES.

We possess a great many things now which should be used by fishermen but which they cannot use for lack of scientific training. Every fishing fleet should have at least one wireless telegraphic apparatus and one person skilled in that particular line; also a submarine telephone so that in fogs they may find each other and find the harbour-mouths and guide themselves in that way, lights and other means of guidance being of little use at such times. The value of this for the protection of life would be immense.

Another department in which science is not quite ready to serve the fishermen, because so little work has been done, is as to movement and habits of fish. We know little about the cultivation of the plankton in the upper layer of the sea which produces as much food as an acre of meadow, and how we might improve its cultivation just as we improve varieties of our grains and grasses. Scientific men have devoted themselves in England without remuneration to that problem for the English coast, and there are great possibilities for that in the future everywhere.

Technical Education is desirable for fishermen. Biological schools are doing something for them, but not enough. Training is needed for fishing. Shad fishing, which was formerly important, is now declining. Oyster beds need supervision. There is great waste in the herring fishery; the Scotch system of control would check this. Much wanton destruction is caused by sportsmen and others, and laws to prevent waste should be enacted. If the young people were trained, it would be a good means of insuring the stability of the industry and the development of natural resources. There is a lack of trained men, especially in curing and treating fish.

If the men engaged in the oyster business could be convinced of the necessity of conserving the beds and treating them properly, it would be more to their advantage. It would be valuable to have instructors who could show by charts how other nations have made a great harvest of wealth and protected their oyster beds.

The herring fishing, too, would profit by better organization and some instruction. Instruction should be given on the variety and value of food fishes of this country, particularly the smelt industry, the Cohauk, clam and herring fishery. How to properly cure fish and also how to care for salmon and trout should be taught. The export from fisheries amounted to $800,000 last year.

Fishermen cure their fish as their forefathers did; quite a lot of fish are dried. Barrels should be standardized; the season for oyster fishing and for smelt fishing should be shortened. Lobsters are getting smaller all the time and something should be done to protect them.

CHAPTER XXII: TESTIMONY AS TO LUMBERING.

Lumbermen ought to have instruction regarding damming streams and putting sawdust and mill refuse in the streams; they seem to think the streams belong to them for getting out their logs and shipping their lumber and they have no regard for the settler or the rights of the riparian owner. There should be education and regulations to prevent that. Lumbermen should also have technical instruction in regard to the pruning of trees and the taking out of matured trees so that there would always be an incoming crop.

One lumberman said the annual growth was renewing the timber throughout his area and another testified that his timber area produced as much as ten years ago and the percentage of waste was less. The tops of trees were now largely used for boxes; fine saws were used in the mills, thus avoiding waste in the form of sawdust and laths were cut out of the small pieces. Formerly lumbermen were content to get one log out of a tree, leaving three or four feet on the stump, but now trees are cut close to the ground. Regulations in regard to fire wardens are helping to prevent fires.

There is not much educational help for the men who go to the woods in the winter time. Forestry courses will assist lumbermen to get the kind of men needed, but they will have to be associated with wood-managers who have practical knowledge, though the latter are not a great deal of good without scientific training. The difficulty is to get men who know and who can also manage. Men who have charge of machinery would be better for technical education.

If boys had one or two years of technical training it would help them to be better axe-men, mill-men, etc., but men must have practice to become really proficient. The disadvantage was in the fact that the manufacturing of lumber was not carried to its higher stages. Manual Training might help in that direction so that the lumber might be sent out in a still more finished stage. A lumber company's employees would be glad to attend night schools and indeed many of them now take Correspondence Courses, but would a prefer personal teacher with practical experience. The Correspondence Courses were very beneficial to young men.

Cutting spruce for firewood and then replanting it would pay, and the Government could get a revenue for educational purposes from this source in perpetuity.

QUEBEC.

CHAPTER XXIII: OUTLINE OF THE EDUCATIONAL SYSTEM.

SECTION 1: INTRODUCTORY.

The Council of Public Instruction in the Province of Quebec consists of Roman Catholic and Protestant members, appointed by the Lieutenant Governor in Council during pleasure. The expenses of the Council are met out of funds voted for that purpose by the Legislature. In the performance of its duties the Council is subject to the Lieutenant Governor in Council.

The Council is divided into two committees, one composed of Roman Catholic members, and the other of the Protestant members. Each Committee sits separately, appoints its chairman and secretary, and makes regulations for the organization, administration and discipline of Public Schools under its jurisdiction. The former deals with all school questions in the Province affecting the interests of Roman Catholics, and the latter with questions affecting the interests of Protestants.

The Roman Catholic Committee consists of: (*a*) The bishops, ordinaries or administrators of the Roman Catholic dioceses and apostolic vicariates, situated either wholly or partly in the Province, who are members *ex officio*; (*b*) an equal number of Roman Catholic laymen appointed by the Lieutenant Governor in Council during pleasure. (*c*) The Lieutenant Governor in Council may add to the said committee four officers of instruction, two of whom, being priests, shall be principals of Normal Schools in the Province, and two of whom shall be laymen, officers of primary instruction; such appointment being made for a term not exceeding three years.

The Protestant Committee consists of: (*a*) A number of Protestant members, equal to the number of Roman Catholic lay members, and appointed by the Lieutenant Governor in Council during pleasure. (*b*) The Protestant Committee may associate with themselves six persons, as associate members; and the Provincial Association of Protestant Teachers may, each year, at their annual meeting, elect one of their members to be an associate member of the Protestant Committee, for the following year. (*c*) The persons so added shall not form part of the Council of Public Instruction, but shall have, in the Protestant Committee, the same powers as the members of such Committee.

School questions affecting the joint interests of both Roman Catholic and Protestants, are under the jurisdiction of, and are decided by, the entire Council of Public Instruction. The two Secretaries of the Department of Public Instruction are joint Secretaries of this Council.

The Superintendent of Public Instruction is President of the Council. The following figures are taken from the report of the Superintendent of Public Instruction for 1910-11:—

Elementary schools.	Roman Catholic	Protestant
Total number of schools under control of Commissioners and Trustees	4,906	947
Number of independent schools	48	4
Total number of pupils	*190,471	†35,967
Percentage of average attendance	74.30	71.29
Number of male lay teachers with diplomas	29	45
Number of male lay teachers without diplomas	12	
Number of female lay teachers with diplomas	4,363	881
Number of female lay teachers without diplomas	724	421
Total lay teachers, male and female	5,128	1,351
Number of teachers in Orders (males 112, nuns 542)	654	1

*Of these, 509 were Protestants.

†Of these 1,644 were Roman Catholics.

SECTION 2: INFORMATION OBTAINED FROM HON. BOUCHER DE LABRUÉRE, SUPERINTENDENT OF PUBLIC INSTRUCTION.

In 1910-11 the number of schools, including universities, classical colleges and special schools, was 6,934, with a staff of 14,597 teachers, of whom 8,532 were male and female lay teachers, and 6,065 teachers in religious orders. The female lay teachers numbered 7,384.

The Classical Colleges are independent and do not come under the control of the Department. The Public Schools are maintained by the ratepayers of the municipalities. There are also grants from the Provincial Treasury for the Public Schools; these have been increasing a great deal.

The number of pupils is increasing every year; 410,000 pupils are now attending schools of every category. We have not compulsory attendance at school in this province. We have no law permitting any municipality to make attendance compulsory within its own boundaries. The School Commissioners in Montreal would not have the power to require attendance at schools. Generally people are not negligent. There is a very general interest in education. I think a large proportion of the children in all the districts go to school. There is not a large class in the country districts that cannot read or write. We have made great progress in the last 25 years. We have a good school system.

Drawing and Technical Training.

Drawing is now taught in the schools, so that the elementary schools would give the necessary preparation for the technical schools.

Technical schools are provided in Montreal and Quebec. This is only a beginning. When those technical schools are running there will not be any need for modifying the course of study in the common schools to prepare the young people.

Superintendent de LaBruére said he had paid a good deal of attention to the question of technical education, and made a report nine years previously, recommending industrial technical schools in this Province, because there were none at that time. He had been delegated by the Council of Public Instruction to visit various places, in connection with the Paris Exhibition in 1900, and made this report, which was printed as Return No. 69, 1902, by direction of the Provincial Secretary.

The Superintendent's report gave an account of his visit to technical schools of Paris, such as the Diderot, Estienne and Boulle, as well as to various other special industrial, commercial and pedagogic institutions.

An Advocate of Technical Education.

In the above report Mr. de LaBruére quotes a paragraph from one of his earlier reports (1897) in which he calls the attention of the legislature to the question of the establishment of schools which might benefit the working classes in cities and towns. "The child who is destined for a liberal profession" he wrote, "has the advantage on leaving the elementary school, of going to a classical college; the future merchant can attend our commercial academies or colleges; the farmer's son can complete his farm education in one of our agricultural schools; but the working-man's son has no special school where he can learn the theory and practice of the trade that he wishes to follow, and enters upon his apprenticeship without acquiring the knowledge that he needs to become a skilful foreman or a master mechanic." He argues that it would be a great improvement to found industrial schools for boys in Montreal and in Quebec, or in some other large manufacturing centre.

Repairing the Loss of Apprenticeship.

In his report of 1902, Superintendent de LaBruére states that his examination, at the Paris Exhibition, of the work of Manual Training Schools of different countries, confirmed him in the opinion just quoted. He refers to the sweeping away of the old apprenticeship system in France, and adds:—"The appointment of an inspector of drawing classes in the Schools of Art and Design, and others, charged with the duty of supervising the carrying out of the program and the progress of the pupils would be also desirable."

Mr. de LaBruére adds that though the appointment of such an inspector of the teaching of drawing, and the increase in the number of school inspectors, would no doubt further swell the expenses of public instruction, the legislature should not hesitate to do this in the general interest; and he quotes the words of the premier of England, Lord Salisbury, to a deputation of bishops on the subject of educational reform: "We must do what we can, and what we can do must be done quickly."

The superiority of the results of Manual Training in the schools of France, as displayed in the work shown at the exhibition, was considered as a proof of their efficiency by Mr. de La Bruére, who adds, "The question of introducing Manual Training in the Primary Schools of the Province is before us."

"Canada cannot remain in the background, but should follow the example set by other nations. With our efforts to colonize our territory and to attract foreign capital, the growth of national industry and the education of our working classes should go hand-in-hand.

"By the richness of its arable soil, its forests and its mines, by its many water-powers and great rivers, the Province of Quebec fills a prominent position in the Canadian Confederation. The owner of a vast field for development, it is incumbent upon the Province to give its children intended for the trades the special education which their occupations require.

"If, within twenty years especially, the Government of the Province has deemed necessary to spread among our farming class the teaching which they needed for cultivating the land with method and success, it is urgent to display the same energy in the industrial field in order that the child quitting the primary school may not be left to himself, but that he may, if he so wish, learn a trade under the best possible conditions by receiving from the State, through the foundation of technical schools, the assistance which he can legitimately claim."

Improvement in Drawing.

Superintendent de LaBruére was forcibly struck with the importance attached to Drawing in all stages of the schools of France, from the infant school for children of 3 to 6 years to the classes of the Superior Primary School. No doubt the improvement in the methods of Drawing, and the special grant of $5,000 for the teaching of this subject, which receives special attention in the Revised Regulations of the Catholic Committee of the Council of Public Instruction, may be traced to the Superintendent's recommendations following his observation of the work of other countries. On this point he says:—"At the Paris Exhibition, in examining the drawings by pupils of all categories, I noted the excellence of the methods, their practical and utilitarian object, and the particular care given to this teaching.

"The different countries are making powerful efforts to spread the knowledge of this art. Belgium hardly yields to France in this, and the same may be said of England and the United States of America. Russia and Japan also displayed their solicitude for the diffusion of the knowledge of Drawing as an essential feature of their technical training.

"Looking at the strong organization of this teaching in Europe and elsewhere, and the great educative value attributed to it, there is reason to regret that in our Province we do not give it enough attention. If we wish to advance in the path of progress, we must alter our methods, set aside those that are obsolete and adopt the newest ones. Good-natured critics made this remark in expressing their opinions upon our educational exhibition in Paris: 'The drawings still follow the old usages,' wrote one of these, but he added at the same time, 'although

the Laval Normal School displays in this respect an original and well-combined method.'

TRAINING OF TEACHERS.

Most of the teachers of this Province are receiving professional training only at the Normal Schools, of which we have 11; that is 7 more than we had 10 years ago. The Board of Examiners give about 1000 diplomas every year. I think every teacher should be required to go to Normal School, but now it is quite unattainable. We are trying to attain it.

Night Classes, Nature Study, Etc.

Some schools are used for night classes now. Our Department would be very friendly to any use of that kind. The night schools are under the Department of the Provincial Secretary. So far as our Department is concerned, we would gladly concur in such use of the school buildings. It would be a good thing to have young men and women from ages 14 to 17 attend night schools twice a week in the country in the summer and learn in a School Garden. If our prize farms could be used as places for education, so that the boys and girls could see them and also go to evening schools, it would be a good thing.

Our Department is making efforts to extend School Gardens and Nature Study. We give prizes to the pupils. We have a School Garden at the Normal School also, and the pupils receive special lectures.

FURTHER STATEMENT BY THE SUPERINTENDENT.

Hon. Boucher de LaBruére, Superintendent of Public Instruction for the Province of Quebec, in response to the Chairman's request for a further statement regarding the question of Technical Education in the Province of Quebec, sent the following observations under date Feb. 8, 1911:— .

"In view of the fact that the Royal Commission has visited the new Technical School at Montreal, and that it is therefore already acquainted with the efforts being put forth by the Government of the Province to provide technical instruction in the larger centres, I take it for granted that your request is especially for such information as will convey an idea of the relationship existing between our school system in general and this important movement in particular.

"The experience of other countries in which technical education has been developed, either by the State or by local corporations, goes to show, I think, that while the end sought is specialized instruction rather than general education or culture, there is nevertheless a vital connection between the education of the ordinary schools and that of the technical schools, and that the progress and advancement of each are of mutual value and importance.

"It is indeed, in keeping with this very principle that at the present moment the Government of the Province has set aside the sum of $5000 a year to encourage the teaching of Drawing in the schools. This is a subject which has been somewhat neglected in the past, owing perhaps to the fact that while authorized in the Courses of Study, there was an insufficient number of teachers properly qualified

to give it attention. I have little doubt, however, that its importance has become more evident just now chiefly because a larger number of people have become conscious of the importance of technical education, and that it is realized more vividly than before that the artisan who has to work with plans drawn to scale can do so more intelligently when he has himself learned the elementary principles of drawing.

'So also with the mathematical subjects. A better conception of the importance of arithmetic, algebra and geometry will prevail when their practical value in technical instruction is realized. No one doubts that the immediate aims of technical education are practical; the studies which are indispensable in this connection thus become invested with practical purpose. The influence, therefore, of technical education in the Province must more and more prove beneficial to the elementary and secondary schools, at least in so far as it encourages increased attention to some of the subjects which might otherwise continue to be regarded by many as possessing disciplinary educational value only.

"The proposition that success in technical education in any community must in the long run depend upon the character and the worth of the elementary schools is one which, in my opinion, does not require any special proof. It is surely self-evident. At the same time it is a proposition which may well be urged frequently, in the interest both of technical and elementary education.

"Educationists, therefore, may well be constantly alert to any proofs of general weakness in the teaching of the common branches in the elementary schools. And here again, as I hardly need to inform you, the essential principle to be kept in view to this end is that the teachers in the elementary schools should be everywhere qualified and trained for their work. Ample provision for this purpose has been, and is being, made in this Province, but much missionary work has yet to be accomplished before every local community is convinced of the necessity and importance of special training for the teaching profession, and adopts the rigid and just consequence of offering a suitable remuneration for the trained teacher.

"I will simply add that the Province of Quebec has entered upon the movement with vigor, confidence and good hopes, and that the findings and the advice of the Royal Commission will be awaited with deep interest."

SECTION 3: INFORMATION OBTAINED FROM Dr. G. W. PARMELEE.

Dr. Parmelee is one of the Secretaries of the Department of Public Instruction, and also Secretary of the Protestant Committee of the Council.

Altogether there are 1400 teachers and between 1000 and 1100 schools under the Protestant Committee. There are about 80 Superior Schools, 25 of which are High Schools, and the rest Intermediate Schools. About 30% of the English teachers are Normally trained. For the last few years enough teachers have been trained for all the schools, 150 or 160 having been turned out in 1910, which should

have been sufficient to fill all the vacancies that would occur in a staff of 1400, but the movement of teachers to the West is very great.

Provision is made for teachers to receive professional training, but a good many in the rural parts lack this, the prominent reason being the insufficient salary in rural schools, which is about $250. While the cost of board is low, the chances for salary increase by length of service are very small.

Offices Rob the Schools.

With the vast increase of population in the cities of Montreal and Quebec, many hundreds of persons who used naturally to become teachers, now become typists and stenographers in banking, commercial and transportation companies. Nearly all of those girls are English, because nearly all large companies transact business entirely in English.

The other avenues which have been opened up, and the large salaries offered in the West, have taken our teachers because they have received Normal Training.

The attitude of the Protestant Committee is strongly in favor of professional training for teachers.

Preparatory for Technical Instruction.

The intention is to strengthen the teaching of Drawing throughout the Province of Quebec, by making the teachers better qualified to teach this subject, and the only way to do this for the Protestant schools, witness thought, was through Macdonald College. Professor Armstrong's report on this subject is under consideration. Drawing for the industries and Nature Study for agriculture are fundamental to technical education, and indeed almost so to all kinds of education.

One objection to Manual Training and Domestic Science is their expense, and another is that it is quite useless to put in equipment for carrying on Manual Training, if there is no competent instructor. The teacher is not available, or rather the ordinary teacher is not competent. If an equipment for Domestic Science could be had as cheaply as $100, Dr. Parmelee thought it would be quite possible to introduce it into all the centres which have Academies.

Nature Study and School Gardens.

All that can be said of Nature Study and School Gardens as being of advantage to the farmer's son, can be said equally as being of advantage to anybody's son. If these subjects have educational value, they would have such value for anybody going into active life, as well as those going to be farmers. Those who are going towards agricultural industries should be given special preparation for advanced work by the training of the hand and the eye.

Not much is being done in Quebec for the teaching of Domestic Subjects in the schools in the country districts. In rural parts the Roman Catholic convents are doing very much more that way than is being done on the English side. In nearly all the large towns there is a convent, which has its own house-keeping going on, so it is not difficult to run Domestic Science classes under

those conditions; but with a school that is small, it is not so easy, and therefore the district schools are doing practically nothing. In this section there are only three or four residential schools for either girls or boys except those in connection with the convents.

After School, What?

Dr. Parmelee did not know what should be done for young men and women from 14 to 17 for two or three years after they leave school. It is pretty hard to get attendance at continuation night schools. He thought that pupils who do not go on to 15 or 16 years of age in the Superior or Secondary Schools generally went to work. They probably find that the day's work uses up so much of their energy, that they do not take kindly to night schools.

The Province of Quebec has had night schools for 25 years, but attendance is not nearly so large as it ought to be. The instruction in those schools has had no direct relation to the daily occupations of boys and girls; if it had the schools would be more attractive. The smaller the place the harder it is to provide a staff.

Montreal is the only place where night schools are conducted for technical work under the public school authorities, and there are the classes of the Council of Arts and Manufactures, which are held in several towns throughout the Province.

The people are not sufficiently alive to the advantage of technical education, in Dr. Parmelee's opinion, and there is not the strong public feeling in favor of it that there ought to be.

CHAPTER XXIV: TESTIMONY FROM TWO AUTHORITES ON PROTESTANT SCHOOLS.

SECTION 1: INFORMATION OBTAINED FROM PROFESSOR J. A. DALE.

Mr. J. A. Dale is Professor of History Theory and Practice of Education, at McGill University.

School training in English is one of the most faulty points. Professor Dale last year examined 50 men in Applied Science and their English was below what it should be; that of the medical students examined for the preliminary medical examination of the Province was equally bad. (Professor Porter subscribed to Professor Dale's statement as to the inefficiency of preparation in English, adding that while the best of the students are poor in English those 50 men were at the bottom of their class.)

The best possible teaching of English would be through the use of it in connection with all school work. It saves time and increases efficiency to correlate English with all other subjects. The most obvious failing in education is that it does not allow scope enough for self-expression, either in speech or writing. If the teaching of English were taken away from the curriculum, the vocabulary would be narrowed and the imagination starved.

Teachers-in-training are so badly prepared that work has to be done at the Training School which should have been done in public schools. There is not time to prepare them thoroughly to teach, as well as to supplement their previous lack of general education, and these teachers go out ill-prepared, and send up more ill-prepared students. The solution lies in systematic improvement of the school course, and compulsory attendance throughout the entire course. We will not get better teachers till we have better educated children.

Work and Play.

In the last 20 years there has been a change in the direction of the activity of children in schools, e.g. Manual Training and School Gardens; this is a practical move in the right direction, which is telling for good in all directions. Organized work in school has educational value apart from earning value; and it is also a means of increased industrial efficiency. In an ideal curriculum this would be one of the sections from the elementary school up. Organized play is an integral part of a good school course; the remarkable success of English Public Schools is due largely to this.

FLAWS AND REMEDIES.

The enquiry into the technical and industrial education of a country naturally focuses itself on the connecting points between the school system which trains the majority of the children and the after life into which they pass. For the establishment of any work in higher education reveals immediately the true state of previous preparation in the students, and drives the enquiry back to the school system. What is the connection between the school and the after life of its pupils? This question goes straight to the heart of the matter and demands solution of some of the profoundest problems not only of education, but of the national life.

The national school systems have been of rapid growth—they came as a result of the industrial revolution. Modern democracy and modern industry require the support of an educated people. But the systems have developed during a transitional stage of society, and grew to some fixity before there was any clear realisation either of the need to be met by education, or the means of meeting it. The curriculum was either traditional or empirical; often it did not even profess to fit for the actual careers of the children, and was slow to learn the tests of a successful education. The change from this official, doctrinaire view is going on before us at the present moment. All the most vital movements in education concentrate upon this point: how to arrange the school course so that it passes naturally and with the least possible waste into the industrial life. For it is the misfit between school and life which has too often made school a preparation for unskilled labor and unemployment.

In its main features the case is the same in all industrial communities which have developed a system of universal education. In nearly all such places education is compulsory, 14 being the usual age. Yet it is found that children leave school too early either to have mastered the subjects of the school course or to be ready to take up at once such reasonable preparation as is needed for skilled labour. They leave just as they are attaining the capacity to profit by the school-work, and before the industrial organisation (especially since the disappearance of apprenticeship) has for them a worthy and profitable place. The consequent shortage of skilled labor is known to every employer of good labor: the moral harvest of the shiftless years is the despair of every reformer, and one of the heaviest burdens of the modern state. The economic argument for the employment of children has already broken down so far as the employer is concerned: the contention that certain very necessary industries (e.g. cotton) can only be conducted with profit by child labor is very rarely heard to-day. The difficulty of the poor parent is much more serious, and its roots lie deep: the problem is more than educational, but surely not beyond the reach of constructive statesmanship. But the difficulty is less serious in Montreal than in towns where there is more widespread poverty.

As with the flaws, so with the remedies: they are much the same in all countries. I will deal briefly with the following:—

1. Compulsory education, i.e. the fixing of an age below which no child may fail to attend school, nor leave without some evidence of a completed course.

2. The provision of continuation classes or schools for those leaving primary school.

3. The provision of classes for those who, having left school for some time, have discovered the disadvantage of their lack of education.

4. Improved training of teachers.

5. Modification of the curriculum.

6. Employment bureau.

Compulsory Education.

1. Compulsory education means the definite assumption by the whole community of the responsibility for the training of its citizens. When this responsibility is once assumed, the other reforms necessarily follow if the organisation of education is regarded as a business proposition.

It would not be necessary even to touch upon the case for compulsion if it were not that the province of Quebec has not adopted the principle. This is owing mainly no doubt to the fact that it has two entirely distinct systems of schools, the Catholic and Protestant: and there has perhaps been a misunderstanding that a compulsory system might interfere with the denominational character of the former. Without covering the arguments for compulsion I desire to point out the chief way in which the absence of compulsion hampers the education of the children of Montreal.

(*a*) In the first place, it greatly reduces the efficiency of the present system. There has been much criticism of the Montreal schools. But before assigning the blame, it is necessary to see if that system is working under fair conditions. This is obviously not the case where many children do not go to school at all, where very many go too late, and the great majority leave too early. The schools cannot be blamed for the failure of those whom it has had no fair chance to train. To give them a fair chance, it is absolutely essential that regular attendance shall be enforced from the beginning to the end of the course. Then it will be easier to come to a fair judgment as to whether that course really does succeed in preparing the children for life.

(*b*) It hampers the improvement of the present system. It is far easier to handle both a single class and a whole system where the attendance is constant throughout the school course, and far easier to introduce desirable changes without dislocation.

(*c*) It hampers the development of the higher grades of education and of intelligent work, because there is no hard and firm foundation of previous preparation. It is found everywhere, (to take an example) that great numbers of students, anxious to take advantage of evening classes, are too ill-prepared. This is true also in most places which have compulsion, because no place has as yet a complete system which has been working long enough: but the difficulty is felt far less where the system is most complete, as for example in Munich.

(*d*) It depresses the quality of the supply of teachers. A good standard of previous preparation makes better training possible: for the trainers of teachers now have to spend much time on teaching subjects which ought to be mastered

in school, and so lose time that is much needed for professional work, especially in this province where the course is, in any case, short. If the schools are to be improved, it can only be through the improvement of the teachers.

(*e*) It prevents the due care of children in matters outside the narrower conception of education: for there is no complete record of the city's children. With compulsion there comes the school census, the complete list, corrected yearly, of all children of school age. In this way the record of each child is kept, and it is shown that children are being neglected, or exploited, or are defective, or in any way need such help as the community is prepared to secure for them. I will not enlarge on this: the greatest of city problems is the care of its children. The lack of record and publicity which hampers every movement for their welfare is just the condition of affairs in which thrive the agencies of degeneration.

(*f*) On these special counts, and in general, it is false economy. It neglects the development of the most fundamental and vital national resources, the brains of its future citizens. It depends too much on the abundant supply of fresh trained brains from immigration, and on the possibilities of success offered to untrained natural talent by almost boundless natural resources. In a word it belongs to the *pioneer* stage.

Continuation Classes.

2. Evening classes are the first and most natural device for remedying the defects of previous education, and always become necessary where there is a demand for skilled labor in a community where no complete system of compulsory education has been established long enough to have trained a generation; or where there is an adult foreign speaking immigration. But they serve other purposes, notably to give technical instruction to those who are at work all day and (*a*) will get no other training (*b*) wish to prepare to enter a technological school, (*c*) wish to get advanced teaching in a special subject. In all these ways admirable work is being done in very many industrial centres. Some general considerations may be noted:—

i. The founding of technical evening classes usually compels the founding of elementary evening classes where they do not already exist: because the technical classes cannot possibly do much good work if they have to do elementary work as well, and the need of fair preparation is absolute. (The Commission will remember the recent experience of the Shawinigan Power Co.)

ii. It is obvious that evening work puts a great strain on students who have been working all day. This may be exaggerated, and it may be said that all students tend to work long hours and risk injury to health; still it it a distinct drawback, and points to the conclusion that indiscriminate evening classes would form no part of a completely organized system. In their present form they belong in the main to the transitional stage which is developing into universal education.

iii. In addition to the strain of long hours just mentioned, various causes contribute to making irregular attendance the disturbing element of evening classes. The chief of these is that very lack of education which the classes are designed to remedy—it acts partly as a disqualification (e.g. the common case of

students starting on mechanical drawing with no previous arithmetic) and more often as a discouragement. One good authority (Mr. C. H. Creasey) calculates that in England, where there is a highly organized system (which has been in fairly full operation since 1893 and dates its beginning from 1859) the average attendance is below 50% of the enrolment. Other causes are to be found in imperfections of the curriculum, and in method of teaching, which need to be very adaptable and sympathetic: usually too the teacher as well as the pupil is tackling a difficult work at the end of a long day. In advanced classes with specialist teachers a very high percentage of attendance is reached even where the pupils are at work all day (e.g. the tutorial classes of the Workers' Educational Association in England secure practically all possible attendances.) This points to the fact that long hours are not the most serious causes of irregular attendance.

iv. It can hardly be doubted that elementary education as a whole in English-speaking countries, has not been strong in certain points which are very essential as providing the means of further intellectual and industrial development. Concentration, individual study, facility of reading, facility of self-expression—these have been neglected often in the interests of a carefully organised system of instruction. It is certain that clearer aims and more efficient methods will greatly strengthen these foundations of all higher education.

Other Continuation Classes.

3. The types of classes just considered are either temporary or special in character. The final types of continuation classes will be completely articulated with the elementary school on the one hand, and with the adult occupations on the other. There can be little question that they will be compulsory; being regarded as an integral part of an education that is truly a sufficient preparation for life. This is as it should be, for they cover the years (14 to 17 or 18) which are at once the most difficult industrially and the most fruitful educationally. There is still difficulty in accepting the idea of compulsion, familiar though it is under less formidable names. Yet its wisdom cannot be doubted from any point of view. It curtails a lower liberty which has been proved to fail in the hands of ignorance, for a higher liberty entrusted to trained intelligence and real experience.

This position—that the preparation for occupation must eventually be part of a universal school system —requires some additional justification.

i. Such preparation was till recently provided in the home, the farm, the workshop, where the craft was a tradition and so naturally imbibed. To-day the home and craft are sharply separated, and tradition rendered impossible, by modern industrial conditions: even agriculture is changed from a traditional art to an applied science.

ii. Where the training was organised, the system of apprenticeship served the purpose, for its stage of industrial development: but that stage is passed, and the problem is largely to find its counterpart under present and foreseen conditions.

iii. As the previous means have fallen away, the school has quickly risen as the organised medium of preparation for life. That preparation, conceived originally with hardly any reference to productive occupation, is now being newly

oriented. The outcome seems certain to be that it will be by means of schools that the fuller preparation of the future will be achieved. This is perhaps the supreme educational problem of our generation.

iv. Historically it may be noted that the earliest attempts to realise this new function of school were (like the first step towards universal education) due to private initiative: and that the state systems have steadily and increasingly adopted it. A few private firms (such as Brunner Mond & Co., of Cheshire, England), realising the double advantage to their employees and themselves, founded schools and made attendance compulsory to the age of 17. There are many intermediate stages, practicable under various conditions and often of the highest value in themselves, till we reach the very complete system now being worked out by Dr. Kerschensteiner in Munich and by Dr. Snedden in Massachusetts. Historically then, as well as rationally, it seems a right and natural extension of school functions.

v. Of the problems that face the construction of such a system only a few general considerations on which there seems a likelihood of agreement can be touched upon here. The age at which the general elementary education will normally end may be taken as 14. On the one hand real specialisation before that age is undesirable; on the other, independent and responsible work subject to the sharp test of practice in the field of ordinary occupations, should not be longer delayed. It may be noticed here, that while longer education gives the best brains a wider choice of occupation, and (if wisely done) a richer and fuller development, the present system allows just these brightest children who would profit by a longer stay, to leave first. (This remains true even where advanced education is free, or where there are scholarships). To keep them in the same school is undesirable; a complementary school is the solution. The closing age is not important: it would depend on the facilities for making the best use of the available time.

vi. Educationally the problem is to combine rational, organised instruction with real workshop practice. This can be attempted along two lines, to turn part of the school into a shop, or to spend some school time in a commercial shop. There is great diversity of opinion as to the combinations of school and shop, and hardly enough experience to decide on any one method. It is not a great matter, and will become clearer when the elementary curriculum is more settled and uniform. e.g. at present much depends on the amount and quality of manual training the pupil has already done. But some conclusions are clear.

(*a*) School is no complete substitute for shop, nor shop for school.

(*b*) It is advisable to alternate them in some way. Here again is much difference of opinion, especially whether a period of entirely practical work should not come immediately after school, in order to get fully familiar with the industrial conditions before studying the theoretical. On behalf of this it is said also that it secures business habits; and against it that it spoils habits of study. But the question is really one of administration, to find the arrangement which will least interfere with the true function of both school and shop; this will probably result in the discovery of a new educational institution in which both find due place. The details all probably differ in different groups of occupations.

(*c*) The school, working full time in the elementary stage, will supply a general preparation for intelligent work, and citizenship. This will be touched upon below in dealing with the curriculum.

(*d*) By working part time in the technical stage the school will at once secure fair efficiency in the shop and use the shop experience to build up its technical and general instruction.

(*e*) The shop, working part time, will at once bring the instruction to the absolute test of industrial efficiency and secure that the student's preparation is such that it meets the market.

Improved Training of Teachers.

4. Every extension of education raises afresh the problem of the supply of teachers: this is very true of the type we are considering. Both for the industrial work in the school and the educational work in the shop special preparation is needed. It is a commonplace that we are seeking for a modern equivalent of the lost apprenticeship system. That system with all its advantages was very wasteful in time and energy, and must always be except where there is an exceptionally gifted or well trained instructor. The modern equivalent will therefore require a supply of teachers who combine (*a*) practical workmanship satisfying commercial standards, with (*b*) a carefully selected and organised knowledge of the underlying scientific theory, as well as (*c*) a thorough and economical method of instruction. While the shop specialises in (*a*) and the school in (*b*), each will, for the effective dovetailing of their work, need some acquaintance with the material of the other.

Modification of the Curriculum.

5. The school curriculum. It is clear that the problem of industrial education involves not only the consideration of adding to the scheme of elementary education, but a re-examination of that scheme itself. The subjects of the curriculum and the methods of teaching them, are undergoing searching scrutiny from a different point of view. The dominant lines of change are in directions which will greatly strengthen the schools, not only educationally but in their function of preparation for industrial efficiency. Of these I can only speak in general terms. Such are (*a*) The value set upon the training of sense discrimination and motor adjustments. The real meaning of the Manual Training movement and its different phases in different grades, is beginning to be interpreted scientifically: and the industrial is seen to be only one of its values, but it is a real one. A secondary value is that it provides a wider field for individual capacities to reveal themselves, and thus enables education to perform more fully its great selective function.

(*b*) The value set upon physical fitness. Schemes of exercise (both formal gymnastics and organised games) based upon thorough knowledge of the growing body, are coming to be a part of every well conceived educational system. The same is coming true of medical inspection and other agencies for the physical welfare of school children, culminating in school clinics. Physical education is a valuable aid to (*b*) in the mastery which it cultivates of various bodily co-ordinations: apart from its value in making the care of health a habit.

(*c*) The value set upon intelligence and goodwill as more important results of schooling than information. This is illustrated by the attempts that are being made to restate all the subjects of the curriculum. However differing in different subjects these new methods have certain common characteristics.

i. They attach as closely as possible to actual experience of the things taught, either by analysing some feature of everyday life, or by leading up to their explanation, or by the construction of experiments.

ii. They offer the utmost possible scope for individual practice and self expression.

iii. They lay great stress on the process by which results are attained. They arrange their material in an order which is at once suited to the experience and powers of a growing mind, and is itself logically coherent. The object is thus, not to record results to be memorised, but to set up mental habits.

The moral, social, educational and industrial bearings of the whole movement need no emphasis here. It is clear that the changes in elementary education are such as will make an increasingly fruitful preparation not only for general culture and effectiveness, but also for definite industrial and technical training.

Employment Bureaux.

6. Employment is not a matter entirely outside the range of a system of education where the object is welfare and efficiency. A system in which the industrial and educational sides are thoroughly articulated in the later school years will have special advantages in finding the right employment for its pupils. Even without this, enough has been done to show the possibility of reducing the number of lamentable misfits between the education which is supposed to prepare for the life, and the life which actually succeeds it. Any complete system of education will comprise its employment bureau.

SECTION 2: INFORMATION OBTAINED FROM Mr. H. J. SILVER.

Mr. H. J. Silver is Superintendent of Schools under the Protestant Board of School Commissioners of Montreal.

There are 7 centres giving Manual Training in wood to all boys in the 6th and 7th years. Some hand and eye training is given in every grade, such as drawing, form study in the way of geometrical blocks, figures, cutting paper and cardboard, clay modelling, plasticine, etc. Weaving is taught in the Kindergarten, but not at present in the higher grades. The boys have 1 to 1½ hour per week in woodwork. In the 5th grade elementary cardboard work is given, including drawing and cutting of models, and regular sketching is done, with the study of form and color and making of articles. Some schools have had woodwork for 15 years, and during the last 10 years it has been compulsory in the 5th, 6th and 7th grades. The effect on the general education and intelligence of the children has been very good, and they appreciate other subjects more in consequence. Children from

6 to 14 years of age should be appealed to through other senses than seeing and hearing. Home conditions do not give as much sense and hand training as formerly, therefore there is more need for it in schools.

Organized games are necessary, and are becoming part of the regular school course. Organized work and play are essential elements of a child's training, particularly in the city. Everything made in the Manual Training course is of use, but is not turned to commercial value. The work done in our schools now is a good preliminary training for a boy or girl wishing to enter industrial life. In the school courses taught chiefly from books, the teacher determines the quality of the work done; the child has no means of estimating the teacher's verdict; whereas in handwork the child's own power of estimating and judging is called into play, and this is essential. It tends to make the child more willing to accept authority rather than less so.

In secondary education optional courses are given in Commercial and Technical High Schools to enable children to discover their aptitudes in commercial, classical, science, technical or housewifery courses. The only way to give children and parents more opportunity of choosing would be to lengthen the course. More Manual Trainning would have a tendency that way, but this could not be done without reducing the literary instruction. There is a valuable training to be obtained from taking literary and Manual Training work at the same time.

The crowding of school courses results partly from trying to inform the child on too many things; but the amount of information given is not very much, whilst the amount of training is as near the maximum as we can attain considering the amount of information we give. We give about as much as the children can take in; it is not abnormal or excessive. The present course in the public schools gives a pupil a good preparation for a Commercial and Technical High School, but not so good a one for the Classical High School. The Commercial and Technical High School is the natural successor of the old senior school, which existed for 15 years. More in proportion are taking that course than 20 years ago, and there is not sufficient accommodation for those wishing to take the course. The Evening Technical Classes under the Protestant Board have a large enrolment. A boy who has had Manual Training in the Public School would be better able to manage the work at the Technical School. Practically all the pupils at the Technical High School come from the Public Schools.

The Drawing in the Commercial and Technical High School is intentionally preparatory for industrial life, the course being made to fit the needs of those who want to enter industrial callings. In the Peel Street High School the work for girls is more on aesthetic than commercial lines, as many girls there are not going into industrial life. On the boys' side the trend of Drawing is towards the science course, so that 5th and 6th year boys will be able to enter the Science Faculty of the University with some success. A boy taking that course would also make a good designer. Drawing is a universal language, and boys should be familiar with it.

Many boys leave school before completing the course; in the 7th year there is a loss of 35%. There is about 25% loss between those who graduate from the Public School and those who enter High School. The one thing essential

to keep them in school is a better estimate by themselves of the value of education in regard to their future position and the financial return which it will bring them. Many leave to earn money, and parents and employers encourage them in this. They must be taught that this is a mistake, where it can be avoided; and where poverty makes it necessary, the remedy is in part-time classes and organized evening schools, with the co-operation of employers and shorter days of work.

Progress is being made, but people move slowly. In Montreal at present there are between 14,000 and 15,000 children, and nearly all the Protestant children are in the schools. The Public School is popular and well patronized. A compulsory attendance law would be a good thing, particularly for keeping children longer at school.

CHAPTER XXV: AS TO DRAWING AND OTHER FORMS OF HAND-AND-EYE TRAINING.

SECTION 1: PROFESSOR ARMSTRONG'S REPORT ON DRAWING.

Professor Henry P. Armstrong, of the McGill University Faculty of Applied Science, was in charge of the teaching of Drawing in McGill Normal School and afterwards in Macdonald College. His reports to the Protestant Committee of Public Instruction reveal the situation in respect to Drawing.

His course of instruction and training aims to prepare Normal School students to become teachers of Drawing, and to be able to manage such a course in this subject as may be prescribed.

For practical blackboard Drawing Professor Armstrong requires the teachers-in-training in numbers of from 8 to 12 at a time to stand and work under his direction and criticism at a long blackboard.

In Drawing on paper the students are required to follow, with strict attention to method, a course involving definite familiar straight-line forms, block letters, simple ornament, leaf, fruit and other Nature Study forms; simple representations of common things, handled in front of them, leading to object Drawing from definite points of view; together with a certain amount of ruler practice and the making of measured Drawings.

In dealing with the principles of perspective and the study of form representation, Professor Armstrong uses carefully selected objects which illustrate those principles, and deal with analysis and construction, advising students as to useful aids in producing correct proportions, directions, etc., and in criticising Drawings.

Criticism of Specimens and Methods.

After inspection of Drawings, sent in from Superior Schools under the Protestant Committee, Professor Armstrong submitted his criticisms as to the specimens themselves, and the school conditions which produce them.

From the nature of the work submitted, and by personal interviews with the Normal students, the following conclusions were drawn:—

(1) That the Drawing in Superior Schools did not follow any definite plan or schedule.

(2) That teachers—and more often the pupils themselves—had sole choice as to what should be done and sent in for inspection.

(3) That the specimens submitted did not indicate or even suggest what was being done or attempted in such schools.

As to the Drawings themselves, they were stated to consist largely of the mere copying of prints and drawings, which process does not necessarily involve a train-

ing as to method of using the pencil; does not mean study of form, as the objects are not seen or handled; does not require knowledge of how to direct lines on paper to produce particular effects, or how to estimate relations or parts so as to correctly represent form; does not train the eye to look for those things essential to give the effect of perspective, light and shade and relief; and does not imply any other effort than that of imitation helped by measuring on the flat and transferring to the flat.

Suggestions For Improvement.

In a later report Professor Armstrong offers these suggestions for the proper working out of this subject at the Normal School:—

(1) A Course of lectures and demonstrations to candidates for Academy Diploma, touching on the educational value and possibilities of Drawing, conditions, methods, material, etc., should be provided.

(2) That two hours weekly, instead of one, be allotted to Drawing at the Normal School, where the subject was so popular that frequently students asked to be allowed to spend extra time on Saturday mornings; and where all but one of an elementary class presented themselves for examination, though the subject was only optional.

(3) That certificates be issued to teachers who reach a definite standard of ability, in the hope that the same certificate will be recognized by both Protestant and Roman Catholic Schools.

(4) That admission to the Normal School be made to depend partly on satisfactory work in Drawing as well as in other subjects.

(5) That special management of this subject, and occasional inspection at the schools, be given by an expert in it.

(6) That an illustrated syllabus of work be planned for the needs of the different grades and schools.

(7) That an annual Drawing examination be undertaken from headquarters.

(8) That a Departmental School Art to carry on the work, and certificates awarded by it to teachers qualifying for the different stages of advancement, would offer decided inducement to those wishing to specialize in Drawing.

Committee's Advance Steps.

At a meeting of the Protestant Committee in February, 1910, an interim report of the Committee appointed to consider Prof. Armstrong's communications to the Superintendent of Public Instruction, and to report on the whole question of the teaching of Drawing in the Province, was submitted as follows:—

The committee agrees that the present position is very unsatisfactory, and recommends:—

1. That Macdonald College be utilized as a centre for the Art Teaching of the Province. (a) By its training of its own students as at present. (b) By the provision of work among acting teachers, such as summer school, correspondence, visits to teachers' institutes, or such other methods as prove feasible.

2. That, after a date to be subsequently fixed, the examination certificate of entrance to Macdonald College include Drawing.

3. That Drawing be made compulsory in Model Grade III. and Academy Grades 1. and II., the scheme of work being drawn up and supervised (in harmony with the work done at Macdonald College) by the Examination Board at Quebec and the Teachers' Training Committee.

4. That, as a condition of Government grant, each Academy be required to have a member of its staff qualified to teach Drawing in the above mentioned grades.

The committee is considering various methods of teaching Drawing, in relation to the needs of the Province, and the steps to be taken to carry out the above scheme.

SECTION 2: INFORMATION OBTAINED FROM Mr. GEORGE E. EMBERLEY.

HAND AND EYE WORK.

Mr. George E. Emberley is Instructor in Manual Training at Macdonald College.

A boy of 12 who had systematic hand-and-eye training from the kindergarten on would have more of the faculty of mechanical analysis developed, would be able to trace the relation between cause and effect, would be more self-reliant, and would make more progress in his academic studies and in any condition of life, than a boy who had had none of that since the kindergarten. There is more residuum of manual dexterity and ability in a boy who has had the longer training, and when he goes to a highly skilled trade at 15, his hands obey his brain better, and he sees better. A long systematic hand-training in school work would be desirable for all skilled work.

From 8% to 10% of the students in the School for Teachers had Manual Training before coming out, but the interval had been so long that it does not influence their teaching much, and they have not generally obtained any permanent value from it.

How The Work Is Done.

Working drawings and freehand design are given in connection with Manual Training. Cardboard and wood are used in the Public School, and iron work is being added. The children make the drawing on cardboard, using no other materials. The drawing becomes real life to them when they try to express it in wood or some material; if the drawing never goes beyond the paper, they have never "proved it out," and hence their drawing is not so satisfactory. They do freehand drawing from objects, principally flowers and leaves. There is not time for making a freehand sketch of a model from which the mechanical drawing is to be made.

Manual Training is correlated with the other departments of the College work as much as possible, e.g. where woodwork can be had to advantage the boys do it. It is useful as well as interesting to make things for use, such as apparatus, mounting maps, binding pamphlets, etc., but there is a certain amount of discipline in doing a Manual Training exercise.

All boys have to take a six months' course in the year, in which they learn about elementary tools, filing them, etc., the character and use of tools and quality and uses of materials, and everything made during that time has a value. This training would be useful to a boy going into brass work, where he had to use other tools, for he would have learnt to analyse things mechanically, and his hands

would be good servants of his brain. He might know nothing of brass material, but he would have learned mechanical analysis, and had it grounded into him and developed as part of his mental faculties. He would have learnt the relation between cause and effect.

SECTION 3: SUMMARY OF OTHER TESTIMONY.

The general opinion was that Hand-and-Eye Training was desirable, the reasons given being various. Several witnesses considered that it was a good thing for boys to learn to use tools and to recognize the quality and use of materials; they would analyse things mechanically; reason better and be more self-reliant, besides making more progress in other subjects. Boys going into shops after a course in Manual Training can use hammer and chisel, and make faster progress. It helps a boy to learn a trade, and to make his hands obey his brain. If mechanical engineering students had taken Manual Training, it would be a great advantage to them. They should have it at school, and then take 2 years of shop work at the University.

Manual Training appeals to children from 6 to 14, and as they now have less manual work at home, this lack has to be made up. Organized play as well as organized work is an important feature of education. The judgment is exercised, it is concrete and not abstract work, and therefore appeals to the child; it increases his vocabulary, and leads him to realize the deeper relations of life. Other subjects can be taught better in connection with it. It makes the child more willing to accept authority. Older boys are helped to find their bent through Manual Training, and many a boy who is dull at books is clever with his hands. Boys from 12 to 15 want to make things, and the physical exercise of making things is good for their health. It sets a boy thinking.

Manual Training subjects could be correlated with others in the curriculum with advantage. Physics could be correlated with Manual Training and Domestic Science; nature observation can be combined with composition, without interfering with the development of the child's literary instincts.

The same reasons were given for the introduction of Domestic Science. It should be taught in every school, for not less than 2 hours a week. Country teachers should teach Domestic Science, hygiene and other subjects, and these subjects would help rather than hinder the general education of the child. Girls in factories should have Domestic Science teaching, as it is more important for them than for country girls. "The wife is the basis for the prosperity of the family"; therefore all girls should learn to be good housekeepers. Girls learn to distinguish between the important things and the less important, and develop dependableness and thoroughness.

Several witnesses called attention to the problem of providing teachers for these subjects. A course in advanced Domestic Science is given in the Normal School; also nursing, laundry, hygiene, sewing and cutting, etc. Teachers

thoroughly competent to teach these subjects could prepare pupils for technical education in the primary schools. Scientifically trained people are needed. Teachers can take short courses at Macdonald College in Household Science, but this is not enough to enable them to teach it. Household Science should be taught in the elementary schools; also dressmaking and millinery.

Domestic Science and Sewing are taught in the convent schools, but not in all public schools in the Province. The Government grants funds to convent schools for this purpose.

In the Collegiate Institutes cookery is not taught, but bacteriology, physics and chemical products of the oven can be studied.

The opinion was expressed that Drawing for girls should be adapted to their special needs, e.g. in dress-cutting, millinery, etc.

School Gardens were favored, one witness stating that every school should have 2 acres of ground, part planted with different kinds of native trees. Another thought that "farmers would despise them."

Manual Training and Domestic Science have been introduced into many of the schools in Montreal, and will be introduced into all in the course of time. The introduction of these subjects is a hopeful sign, and not only useful for education, but for increasing industrial efficiency. At Macdonald Model School, Manual Training is organized right through from the Kindergarten up.

There is a dressmaking and hat-making School in Montreal attended by 534 pupils, most of whom come at night to learn designing and pattern-drawing. They find good positions.

In most cases the reason given for not introducing these subjects was lack of funds. One or two witnesses thought that young men would acquire intelligence and dexterity with age in the course of their daily work, and therefore did not need Manual Training, though it was admitted that it would do them good. Another reason was the overcrowding of the school curriculum, which left no room for these subjects. Manual Training had been tried in some of the classical colleges, but had not made much headway.

CHAPTER XXVI: AS TO EVENING CLASSES.

To the Council of *Arts* and *Manufactures*, incorporated in 1872 as an outgrowth of the Mechanics' Institute movement of that time, is chiefly due the credit for the establishment of the present system of evening schools in the Province. The Council's object is to promote improvement in the mechanical arts and manufactures, and among the steps taken to attain that object has been the establishment of about 78 classes in some 13 different places in the Province, which are open to all without distinction of race or creed.

Similar classes have been established in later years by the Montreal Technical Institute, the Protestant Board of School Commissioners, and, as a Commercial necessity, by the Dominion Bridge Company. In each case the results have been highly satisfactory.

In 1910-11 the Province of Quebec had 75 night schools with 169 teachers (6 of whom were females) and 5,828 pupils (563 being girls), average attendance being 3,209.

The steadily increasing attendance of pupils and the excellent results of the tuition given go to show that evening classes are appreciated. Those in charge of industries most intimately concerned are unanimous in the opinion that on the economic side the establishment of the classes was fully warranted by the increased profits accruing from the greater skill and wider knowledge of the workmen who attended them.

The Council of the Montreal Board of Trade, in October 1906, petitioned the Provincial Government to assist to the fullest possible extent in the establishment of technical schools so that the skilled labor so much needed for manufactures might be provided by our own people and not,as is now so frequently the case, imported from other countries. The Board also urged the Government to largely increase the grant to the Council of Arts and Manufactures to assist that body in the good work it was doing.

SUMMARY OF MUCH TESTIMONY.

Evening Schools are advocated to remedy the lack of education of young workers. They are needed for boys of 16 who drift. Boys have their clubs at which they meet in the evenings, and they might just as well be at school; it would do them more good. They would be all the better for it, and the older workmen, too, would be glad to go. Evening Schools should be maintained out of public funds. Pupils must have some definite aim in view to cause them to come. Many workmen are willing to give all their spare time to evening classes so as to advance themselves in technical qualifications.

One witness did not favor Evening Schools, as he thought the boys would be too tired. They have sometimes not been a success for this reason. Girls, especially, are often too tired to attend. Some witnesses approved of the idea, but said it was difficult to get attendance at Evening Schools.

Most witnesses thought the classes should be free. The Public School equipment could be used. Possibly shorter working days might encourage attendance. The classes should be made attractive with pictures. Evening Classes would be very much better than Correspondence Courses.

Teachers should be prepared for Evening Classes at once. Girls should have dressmaking and hat-making 3 times a week, and Domestic Science Classes, to keep them out of the streets.

Boys should be trained by men, not by women. Evening Schools to reinforce the old apprentice system would be the best; some apprentices now take classes for 5 nights weekly, but most only for 3. Their elementary education is deficient. Workmen and apprentices would attend Evening Schools if they were established.

Evening Schools are very desirable for gaining a knowledge of mechanics and the general use of tools. The teaching of elementary steam engineering and mechanical engineering would be greatly helped if better equipment of apparatus were available. Instruction in Evening Classes was requested by the Shoemakers' Union. Short courses on woods, textiles, leather, would be welcomed; men would attend and it would be a paying scheme. It is doubted whether textile machine workers would profit; foremen would be better for the classes. Bricklayers need Evening Classes. Evening Classes would be useful to teach the quality of leather, pattern cutting and designing.

Evening Schools for the crafts are favored. Evening Classes for metallurgical processes and drawing would be desirable. Evening Schools are required for instruction in science, chemistry and painting, "for the purpose of developing taste and intelligence." Evening Classes for designers are greatly needed, as they have to be imported from abroad. Working people in the Province of Quebec would be enthusiastic over a Technical School.

CHAPTER XXVII: CLASSES OF THE COUNCIL OF ARTS AND MANUFACTURES.

SECTION 1: ORGANIZATION AND ADMINISTRATION.

The Council of Arts and Manufactures is composed of 17 members appointed by the Lieutenant-Governor, together with the Commissioner of Agriculture and Colonization, the Provincial Secretary and the Superintendent of Education as ex-officio members. One of the duties imposed on the Council is "to make rules and regulations for the establishment, management, administration, and carrying on of a system of teaching drawing in all its branches in the schools under the control of school commissioners and trustees, in conformity with the provisions of the law respecting public instruction." Hence the classes formed are chiefly intended to afford instruction in drawing, and in its useful applications to industrial purposes, to those having taste and inclination for these matters, but more especially to artisans and apprentices. It is the aim of the Council to make the instruction as practical as possible in order that the pupils may profitably apply the knowledge gained to the various trades and branches of industry in which they are engaged. All the classes are entirely free.

Classes in 1910-11.

Localities.	No. of Pupils.
Montreal	1635
Quebec	253
St. Hyacinthe	196
Sherbrooke	100
Three Rivers	130
St. Johns'	53
Valleyfield	65
Sorel	29
Charny	25
St-Romuald	26
Chicoutimi	21
Total	2533

Organization and Benefits of Classes.

Mr. Thomas Gauthier, President of the Council, explained the organization of the classes. The Provincial Government makes a grant of $16,000 towards the cost of the work. No fees are charged, although students are expected to provide their own material in the Drawing classes. At the end of the session certificates and prizes are awarded to successful students.

That the classes were of the greatest advantage to apprentices was proved by the fact that lads attending had the period of their apprenticeship shortened in the proportion of one day in the schools to two days of ordinary apprenticeship. Many boys had in this way decreased by a full year the term they would otherwise have spent as apprentices. The certificates granted to pupils for this purpose had been officially recognised for six or seven years in the Angus shops of the C.P.R. It was agreed on all hands that the apprentice in addition to shortening his apprenticeship, became a better workman because of his instruction in the classes.

Freehand Drawing, Mr. Gauthier maintained, was absolutely necessary for all trades, and the best possible form of Drawing was direct from the object. It developed the intelligence, enforced the memory, and made the mechanic in all respects a more competent workman.

Evening Classes Preferred.

President Gauthier did not think it would be possible for day classes to take the place of these evening classees, as 75% of the pupils were over 25 years of age, and they were all working people who could not find time to attend day classes.

Though the Council had received most urgent requests to establish more schools in the different localities, it was impossible for them to do so, as they had not the means. Mr. Gauthier strongly favored the suggestion that elementary or secondary school buildings should be used for evening classes, and if the object of such classes was to supplement the teaching of a trade he thought the number of pupils would far exceed the accommodation which could be provided. The schools were without question of the greatest advantage to the various industries.

M. J. P. L. Berube, Secretary to the Council of Arts and Manufactures, drew attention to the fact that the female pupils attending the classes were drawn from all ranks of society.

SECTION 2: INDUSTRIAL CLASSES IN MONTREAL.

These were held as follows under the auspices of the Council of Arts and Manufactures (The number of students is given after each subject, the total being 1,259.)

At Monument National, 296 St. Lawrence St. For both sexes:—Music, 121; Modelling, 45; Freehand Drawing, 126; Freehand Drawing (2nd section) 113; Lithography, 23; Architectural Drawing, 123; Mechanical Drawing, 81; Sign Painting and Lettering, 59; Boot and Shoe Pattern Making, 39; Carpentry, Joinery, Stair Building, 81. For women only:—Dress Cutting, and Sewing, 155; Millinery, 78.

At St. Lawrence Market. Plumbing, 127.

At 147 Charron St. Mechanical Drawing, 62.

At Angus Works, C.P.R. Drawing, 26.

How Architecture is Taught.

Mr. Venne, Professor of Architecture, reports as follows in regard to the manner of conducting the courses in Montreal:—

We have pupils from all the trades; clerks, accountants, drawing men in architects' and engineers' offices; of every class and grade and nationality, and the lessons are given in either language. We especially aim to develop their artistic sense, by pointing out what is in bad taste. We make them letter their drawings and plans in the simplest and most artistic way, always in Roman letters. In order to simplify tracing in ink and plans, we make them draw all their lines of a uniform and medium thickness. Further, to encourage their taste, we let them do a few things in color, and in spite of the drawback that the work has to be done by artificial light, the results are most satisfactory.

Particular and individual instruction is given in all cases in the use of drawing instruments, drawing boards, T squares and angles, compasses, pencils, rulers, regular and irregular curves, the scale in English measures. This latter is most important, as the majority of the students come here to learn the use of this instrument, and there are older workers who come after 20 or more years' work for this purpose.

Pupils are questioned individually on the four first rules, with the result that it is generally found that half of them have forgotten what they learnt at school. There are even men of 40 and 50 who never went to school, and have to be taught the elements of arithmetic.

The first drawing lesson is geometrical drawing, to which four to six evenings are given, after which they are quite at home with it.

They draw or copy plans of houses, being told the use of all the materials and the manner of describing them on the plan. At the same time they do calculations on the construction of stairs, resistance of materials, and heating systems (for those in this branch of the trade).

Metal Workers, Electricians, Painters, Etc.

Sheet metal workers are given special lessons on projections, a most necessary part of their work, and many of them after a year's course make considerable progress in their profession.

Ornamental iron workers also attend the classes for the sake of the drawing which they cannot otherwise obtain.

Steam-fitters are given problems on the installation of heating apparatus.

Electricians learn to draw plans of electric installations.

The more advanced pupils make plans on a larger scale of details of stone, wood, carpentry, iron, etc.

Painters and decorators who are sufficiently advanced have special lessons in ornamental designs in construction on geometrical lines.

The orders of architecture are taught to pupils having special talent for this art, and to architectural students, and these pupils usually begin this work after the second year, when they have mastered the elements of geometrical drawing, construction and ornament. We do not aim to train architects, but at the

same time, our classes have been the starting point for many of our architects and artists.

It is to be hoped that our government will endeavor to maintain these schools practically free, so that the poorer classes may profit by them and develop talent which otherwise might remain unrecognized.

I would venture to add that what is lacking in our elementary, and even higher schools, is instruction in drawing. It is a regrettable thing to meet men in the liberal professions who have no other use for a pencil beyond writing and figuring.

NEED OF FREEHAND DRAWING.

Mr. Jobson Paradis, M.A., Teacher of Freehand Drawing Class for the Council of Arts and Manufacturers, in Montreal, adds to his testimony the following views:

I do not think that Freehand Drawing is given the attention it deserves in our country, and it strikes me as an abnormal state of affairs that government technical schools should exclude this study from their program, as indeed they are doing in our Province.

Drawing being the basis of all intelligent manual work, ignorance of this branch is the weak point in our national production. Decorators, cabinet makers, ironworkers, etc., must employ men from the other side, while we have skilful mechanics here, because our young men have had no training in drawing and are unable to read a working design. This, you will say, is where mechanical drawing comes in as a necessity. Just so, but not altogether, and not until the boy's sense of observation has been developed.

The object of Freehand Drawing, as we are teaching it in our school, is precisely to train the eye; the pupil must learn how to see objects, to estimate at sight dimensions, distances, proportion of surfaces, and delineate forms. For this reason, all work from flat examples has been discarded from our course.

The young working man, jeweller, cabinet maker, wood carver, joiner or stone cutter, is not often called upon to make a working design for a piece to be executed, but he must have a trained eye, a keen sense of observation, and this can only be the result of freehand study from solid objects.

The working design itself can only be done properly after a freehand sketch, and where there is no working design, the intelligent craftsman must form in his mind a definite image, which I would call a "mental drawing", of the work to be executed.

Now, the Council of Arts is the only institution in Montreal where this fundamental training can be had by young men of the working classes; but, for want of funds, these classes are only held a few nights in the week, and during only about five and a half months in the year. A seven-months' vacation is plenty of time for the pupil to forget what he has learned, and to considerably weaken the sense of observation which he may have acquired. Nevertheless, it can be said that with but very few exceptions, all our most proficient artists, painters, sculptors, decorators, illustrators, lithographers, and the like, have received their first training here.

In consideration of the efficient work done by this school in the past years I think it would be a very wise course on the part of the Government to grant

the Council a further subsidy in order that the classes may be kept running the whole year round.

As for the cause of Art, it will also evidently he helped out by the creation of the new facilities for the study of Freehand Drawing, as it is only by this study in early years that one's taste for the beautiful can be properly developed.

Mechanical Drawing and Geometry.

Mr. W. A. Booth, who for six years has had charge of the Council's class in Mechanical Drawing at Point St. Charles, Montreal, writes:—

The program of instruction comprised the explanation of drawing from blue prints, and principally the reading of same, to enable them to better understand their various trades. After the pupils are capable of making and reading blue prints their time is taken up by sketching from models of various parts of machines and engines, which is very much appreciated by the adult scholars.

The rank and file of this class in this suburb has been a very representative one, composed mostly of young men hankering after a desire to become more proficient in their daily toil, and with a view for promotion. I recall one or two instances of persons coming as far as from Ontario to attend this class. The practical results obtained I am rather too modest to mention, as it may sound like a boast, but I am delighted at least to state that not a few have made their mark already both in this country and to the south of us, so that I think the Council is to be congratulated on the work it is carrying on, a work that should be recognized by the Province and Country to which we belong.

From time to time I receive letters from some former pupils expressing their gratitude for the knowledge they have acquired through the school and thanking the Council for the positions they now hold.

SECTION 3: CLASSES AT SHERBROOKE.

As a sample of work done outside of Montreal under the auspices of the Council of Arts and Manufactures, the following may be noted from a memorandum by Mr. Robert Wyatt, Superintendent of the Sherbrooke Art School, whose free evening Drawing Classes are entirely sustained financially by the Quebec Government.

Methods in Drawing.

The classes in session in this city are in mechanical and architectural work. The Mechanical Department is divided into three classes:—

(1) The first term pupils are engaged in linear drawings, or in other words projections, the method of instruction to this class being by sketches on the blackboard and verbal explanations as well. The students are taught to show the different plans, elevations and cross-sections, tilting the forms at different angles and showing how they appear in those positions.

(2) The second term pupils are engaged on machinery drawings, showing their plans, elevations, cross-sections, etc. They work principally from blue

prints, drawing to a scale, either enlarging or decreasing as the case may be. This is considered eminently practical, and we regard it as actual machine shop practice.

(3) The third term pupils are engaged on the machine itself, taking their measurements by means of calipers, compasses and rules, constructing all the details belonging to the machine which they are engaged on, afterwards assembling the details and making a general working drawing. This is also considered very practical, and a great benefit is derived by pupils working from a machine.

I would suggest that two other classes be established in this city, namely, stair buildiug construction, also a freehand class which would draw from models entirely, omitting all copying whatsoever, as I believe in the latest custom of freehand drawing in Europe.

This school has been under my supervision for the last twenty years, and I have found that it has been a great benefit to the young men who are engaged along the line of mechanical pursuits. It educates them to the language of drawing, and makes it very much easier for them to master their work in the everyday workshop. Sixty persons who attended this school during those twenty years hold very good positions, their salaries ranging from $1200 to $3000 per year.

Classes for the Building Trades.

Mr. Louis H. Audet, teacher of the Architectural Class at Sherbrooke, writes:—

The main object of this course is to give to the carpenters, joiners and other people engaged in the building trade a general understanding of plans, and allow them to make details of construction. The drawing they do is the general architects' office working drawing; the most advanced pupils work on a full set of plans for a house—the floor plans, elevations, sections and details of work. A certain number of students are young and have no profession, but simply come to the school to learn drawing. They do usually the same kind of work as the carpenters, etc., though sometimes less practical.

The pupils are not so numerous as to allow of any special division. The lessons given, except the preliminary ones, are individual lessons.

The most advanced pupils, generally the third term students, work on a little sketch given to them. It is simply a problem two or more are working at, or I ask them to make a design for such a thing as any man might ask for, which I have found the most practical way, and while working at this I give them the necessary explanations in the way of showing different things on a plan, the different manner of rendering, etc.

Unfortunately this classs does not receive the attention it ought to have, though it is much better than it was a few years ago. Many students come to the class for two or three months, but on account of lack of work in winter they go elsewhere.

A course in stair building construction is much looked for, and I believe will be of great benefit to the carpenters and joiners of this city. It will be perhaps of a more practical character than the architectural course.

I know some contractors in this city who, being bricklayers and carpenters, by their work at the classes have learned to read plans and after a few years worked as managers of large work and to-day are contractors for themselves. They first came to the school with the idea to learn something that might enable them to become what they are to-day.

CHAPTER XXVIII: CLASSES UNDER THE PROTESTANT BOARD OF SCHOOL COMMISSIONERS.

SECTION 1: EVENING CLASSES.

Evening classes are conducted by the Protestant Board of School Commissioners of Montreal, and supported by a grant from the Provincial Government. Of the total cost of the schools in 1910, the Provincial Government paid the salaries of the teachers, $3,467.65; the City of Montreal made a grant of $200 towards the cost of materials and supplies; the balance, $1,167.14, being met by the School Commissioners.

During the session 1909-10, 20 classes were opened in ordinary school work, with 966 students; 6 classes for male foreigners wishing to learn English, with 334 students; 14 classes in Manual Training, sewing and cookery, with 415 students; making a total enrolment of 1,715 students in all classes, being an increase of 280 on that of the previous year.

There were in actual attendance 720 students on an average each night that the classes were in session under a teaching staff that averaged 34.

Mr. H. J. Silver, Superintendent of the Protestant Schools, said that he could see but two ways of helping the large number of children who found it necessary to go to work at the beginning of the fifth grade in order to help at home. One way was by part-time classes, which had not been tried, and the other by a more careful organization of a system of night schools. In either case the co-operation of the employers would be needed, for if night classes were to be of use, the pupil must have a short day's work, or he would be too tired to benefit by the class. Although the Commissioners had been conducting night schools under the patronage of the government for a number of years, they had not been attended generally by those who needed further education. He believed a scheme for part-time classes feasible, if employers of labor and school officials work hand-in-hand.

MONTREAL TECHNICAL INSTITUTE CLASSES.

Under the joint management of the Montreal Technical Institute and the Protestant Board of School Commissioners, Evening Technical Classes are conducted in the Commercial and Technical High School, 53, Sherbrooke Street West.

The Institute had its origin in the Canadian Manufacturers' Association (Montreal Branch), complaints having come repeatedly to the executive from manufacturers respecting the unsatisfactory condition of technical education in the city. A committee took up the subject with the Mechanics' Institute, and some influential citizens, and a charter was obtained for the Institute.

The Mechanics' Institute expressed a willingness to contribute liberally towards the erection of suitable buildings. The incorporators, on consulting with the Protestant Board of School Commissioners, found them well disposed towards the movement, and they offered to give the use of their Technical School buildings for evening classes without any charge beyond the cost of heating, lighting and other incidental expenses. The manufacturers and citizens subscribed a Guarantee Fund of $10,000, and $5,000 was granted from the Provincial Treasury. The Institute afterwards secured a grant of $5,000 from the City of Montreal but without any obligation for its continuance.

Increased accommodation has been provided from year to year. The cost to the community has been trifling, notwithstanding the fact that the fees have been extremely moderate, many classes being free. The quality of the tuition in all departments of the Institute work is of high standard, the joint committee having taken special care that the only the best available teachers should be engaged for the work.

The attendance, which has increased at the rate of 30% for each succeeding year, and the faithful work of the pupils have demonstrated fully that there is a consistent and increasing demand for technical instruction on the part of the artisans of the city. The results of the work have fully justified the continued financial assistance from the Provincial Government and the City of $5,000 each. The Canadian Pacific Railway subscribed $1,000 towards the maintenance of the classes for the session of 1910-11.

The Teacher Problem.

The Principal, Mr. Isaac Gammell, stated that the great difficulty in arranging evening classes was to obtain properly qualified teachers. Out of 27 teachers only about half were professional, and in the technical subjects it was impossible to get enough. The three requisites were (1) experience as a teacher, (2) a college course in the technical subject, and (3) practical experience in the same line of work in order to distinguish what was merely theoretical, what was valuable as a training, and what was practically valuable.

For lack of room, admission had been refused to a very large number who desired to attend the classes in wood working, metal working, cookery and millinery.

A deposit of $2 was required from each male and $1 from each female student, but this was returned at the end of the session for 75% of the possible number of attendances.

Courses, Attendance, Etc.

These comprise:—a Preparatory Course in ordinary English branches for students not sufficiently advanced to undertake the higher work of the technical classes proper; a course in Practical Mathematics, including Technical Arithmetic, Mensuration, Algebra, Trigonometry, Practical Plane and Solid Geometry; Courses in Freehand, Geometrical, Mechanical and Architectural Drawing; Industrial Designing; Applied Mechanics; Building Construction; Theory of Structures;

Machine Construction; House Carpentry; Pattern Making; Metal Work and Electrotechnics; and in Cookery, Sewing, Dressmaking and Millinery for women.

The following is an abstract of the attendance for December 1910:—

Subject	Classes	Students	Weekly Sessions.
Preparatory Course	4	103	3
Practical Mathematics	5	113	2
Mechanical Drawing	2	51	2
Freehand Drawing	1	21	2
Industrial Designing	1	9	2
Architectural Drawing	2	32	2
Applied Mechanics	1	13	2
Theory of Structures	1	5	2
Building Construction	1	14	1
House Carpentry	1	20	2
Pattern Making	1	9	2
Metalwork	2	43	2
Chemistry	4	42	2
Electricity	4	57	2
Cookery	8	190	1
Dressmaking	5	80	1
Millinery	2	41	1
Totals	45	843	31

Percentage of attendance was 77.8.

Occupations of Students.

The following statement shows the daily occupations of the men attending the various classes:—

Commercial	179	Metal Workers	129
Draughtsmen	61	Electricians	54
Woodworkers	35	Chemists	20
Engineers	14	Laborers	13
Jewellers, Electro-platers, etc.	11	Bricklayers	10
Printers	8	Inspectors	6
Manufacturers	6	Students	6
Designers	3	Painters	3
Teachers	3	Dyers	2
Gardeners	2	Plasterers	2
Cement maker	1	Photographer	1
Tailor	1	Engraver	1
Blacksmith	1	Harness Maker	1
Upholsterer	1	Veterinary Surgeon	1
Time-keeper	1		
	327		249

Total 576

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SECTION 2: THE COMMERCIAL AND TECHNICAL HIGH SCHOOL.

This school was established by the Protestant Board of School Commissioners with a view of giving pupils who have completed the Public School Course an opportunity to continue such studies as would secure them a good business preparation, or fit them to engage in any of the various occupations in which a previous training in manual work is desirable. The studies offered by the School have, therefore, been divided into two Courses, viz:—a COMMERCIAL COURSE, and a TECHNICAL COURSE.

THE TECHNICAL COURSE.

The Technical Course consists of three divisions—Manual Training for boys, Domestic Science for girls, and Industrial Freehand Drawing.

The Manual Training.—Instruction is of a practical character, given to boys, in Mechanical Drawing, Woodwork, Clay-Modeling, and Metalwork.

Mechanical Drawing.—In connection with Mechanical Drawing, lessons are given in plain and solid geometry throughout the course.

Woodwork.—The purpose is to develop the power of manipulation by using various tools, and to cultivate accuracy by the working of the various exercises embodied in interesting and useful models, made from drawings, worked to scale, in plans, elevations, section, and in some cases conventional isometric projections.

In connection with practical exercises the pupils receive lessons on the nature, growth, description, qualities, seasoning and uses of the more common kinds of Canadian and foreign woods, regarding the names, proper uses, correct handling and principles of construction of various tools involved, and upon the modes of hardening, sharpening and using them.

Pupils are familiarized with wood-turning tools and lathe operations, requisite skill being acquired by means of exercises, or models, such as tool handles, mallets, rolling-pins, dumb-bells, table-legs, and making of tables, thus combining wood-turning with wood-work.

Clay-Modelling.—The aim is to train the eye to observe the shape of objects, then to train the hand to make what the eye has seen. The modelling is done from casts from original designs, suitable for ornaments of inside or outside of buildings.

METAL WORK.

Bench Work.—Composition of soft solders; use of copper soldering, bit composition and use of ordinary fluxes; soldering simple joints in tin and brass work. The connection of plates and bars, and of joints, with rivets, single and double countersunk, hammered cold.

Vise Work.—The form and use of flat and cross-cut chisels; flat, round, square, and half-round files; scrapers, taps, stocks, and dies; screw plates; measuring, and other tools, including calipers, squares, centre punch, scribing and V. blocks, straight-edges, and surface plates. Grinding and keeping in order of the tools used. Making of models, such as squares, calipers, small clamps, etc.

Forge Work.—The form and use of the ordinary forge tools, management of fire, precaution to be observed in heating metals, drawing out bars to square and round ends, forging of simple examples as headed key, spike, nail, forging and tempering centre punch, drill and small chipping chisel. Connection of pieces of bar by welding.

CHAPTER XXIX:
THE SHAWINIGAN TECHNICAL INSTITUTE, SHAWINIGAN FALLS, QUE.

This Institute was founded in 1911 in the belief that a town with industries of the size and importance of those of Shawinigan Falls should possess facilities for training its own skilled workmen. The school seeks to meet this need in two principal directions; by evening classes for those already employed, and by a day department for boys over 14 years old, seeking technical instruction. In both fields the instruction is as practical as possible, and as nearly suited to the needs of the individual as it can be made.

The Institute was incorporated by the Provincial Government in 1911. Evening classes in technical subjects and in English began in January of that year and lasted 14 weeks. The work was continued through two terms of 14 weeks each, in 1912-13, with a total membership in the classes of about 60 under 8 instructors.

Mr. J. E. Alfred, President of the Shawinigan Water and Power Co., has guaranteed $2000 per year for five years, which forms the nucleus of the financial proposition.

The New Building.

This year the Institute moved into its new building, which is amply equipped with recitation rooms, laboratories for Electricity, Mechanics, and Chemistry, and a large well-lighted draughting room. The basement is equipped with benches, lathes, and the usual apparatus for a thorough course in shopwork. The entire top floor is arranged as an assembly hall, suitable for lectures on subjects of popular interest or for functions of a social nature. In the building is also provided a library, free to all members of the Institute.

The Day Department.

A day department has been opened for boys aged at least 14 who have completed the amount of French, English, and Arithmetic taught in local elementary schools. Special students are admitted to any course for which they are prepared.

Tuition is fixed at the rate of $4 per month. 10 free scholarships covering tuition, for the benefit of the first year students, are to be assigned upon the basis of the entrance examination. A well-balanced course embracing French, English, Mathematics, Applied Science and Shopwork has been arranged.

Co-operative Instruction.

As a feature of the work of the third and fourth years, the school is planning to co-operate with the local industries permitting students who desire to work in pairs, spending one week at skilled employment, the alternate week being spent at their studies related to their projected vocation. In this way they will gain an invaluable experience in industry and at the same time be earning sufficient to permit those to remain in school for whom it would otherwise be impossible.

Later it is planned to extend the method to those desiring commercial training, permitting them during their last two years to spend one half of the day at the school, and the remainder as clerks or office assistants.

Evening Classes.

These open in November and run for 20 weeks. The course includes conversational English and French, Arithmetic, Mathematics, Mechanics, Chemistry, Electricity, Mechanical Drawing, House Carpentry. The last mentioned is recommended to apprentice carpenters. The students will construct from blue prints in the amply equipped workshop all the parts of a frame house.

Students must be at least 16, and show that they are able to profit by the instruction. The fee is $1 per month, or $1.50 if instruction is given three nights weekly.

THE NEEDS OF SHAWINIGAN FALLS.

Mr. John V. L. Morris, A.B., (Harvard), Principal of the Institute, gives the following information and opinion as to needs of and facilities for technical education in Shawinigan Falls:—"There are at present five principal companies operating in Shawinigan Falls,—the Water and Power Co., The Northern Aluminum Co., The Belgo Canadian Pulp and Paper Co., The Carbide Co., and the new Cotton Company.

Numbers of Industrial Workers.

"In the Power House the Power Company employs at present 36 men, all of whom should be skilled machinists or electricians or their assistants. The number might be divided about evenly under those three heads. Upon observation I have found that the best of these positions are held usually by men who obtained their training as apprentices in the evening technical schools of England, or else by self-instruction through a correspondence school, where the workman has sufficient elementary education to profit by such instruction. While I have found no discrimination, there is a notable fewness of French-Canadians who have been able to rise to the better positions. This condition seems to be due to their ignorance of English, and meagre education in general.

"The Power Company is also employing at present some 200 odd men on its construction work. Among these are 39 mechanics, 39 carpenters, 9 foremen, the rest being ordinary laborers.

"The Aluminum Company, working at full capacity, could employ 600 men, but the usual number varies from 200 to 400. Among these at present are some 30 skilled machinists, electricians and blacksmiths. Scarcely any of these, however, have had the benefit of secondary or technical education, and in the plant itself, there is no system for apprentice instruction, so that vacancies have to be filled by men brought in, as a general rule,

"The Belgo Pulp and Paper Company employ men who are to have or should have knowledge of mechanics; in addition to which are others of the 360 men who would greatly benefit by having some knowledge of mechanics, or in general a better education.

"The Carbide Company through its superintendent informs me that they have a total of about 125 men employed, of whom 25 could with advantage take technical courses. (Many of the others would, it seems to me, profit by elementary instruction.)

"The Cotton Mill employs about 200 men and girls. Under present conditions it seems the least promising field for technical instruction of the industries located in this town.

"Besides the employees enumerated above, there is a small wood planing and finishing mill located here, and the Terminal Railway, some of whose workmen have already enrolled in our technical classes. There are also employed in this town, the usual number of mechanics, carpenters, electricians, etc., engaged by the local light company, building construction and the like, as well as clerks, many of whom are eager for instruction in English, the common school branches, and occasionally for technical instruction.

The School Opportunities.

"Present school facilities are as follows:—For elementary instruction, there are in this town both French and English schools. These include a convent school for teaching the girls, and a school for the boys with 6 Christian Brothers as teachers, and between 250 and 300 pupils. The English school is co-educational with 2 teachers and about 40 pupils.

"The noteworthy fact in this connection to us is, however, that in this town with a population of 4000, there are absolutely no school facilities of secondary grade for day instruction. The children usually leave school when from 12 to 14 years of age. Thus, while I have no statistics, I should judge that there were probably 300 boys and girls of the ordinary High School ages, who are now out of school. Of course where the parents are well-to-do, they are sent to the numerous boarding schools for some part of this period; still I am of the opinion, that were technical subjects offered as a part of a regular High School program, many who now leave school for the factory, would make a way to attend."

CHAPTER XXX: THE MONTREAL TECHNICAL SCHOOL.

This new institution, at 70 Sherbrooke Street West, which owes its foundation to Sir Lomer Gouin, Prime Minister of the Province of Quebec, was incorporated by law on the 14th March, 1907. The government of the Province of Quebec provided the necessary funds for building and equipment, and grants an annual subsidy towards its maintenance. The school also receives an annual grant from the City of Montreal. This school was opened in September, 1911. For its size, the building and equipment are amongst the finest in either America or Europe. The building occupies a plot of ground measuring 153,000 square feet, and is divided into two distinct sections; the main building and the workshops in the rear.

The Main Building.

The Main Building, which is absolutely fireproof, comprises the administration offices, also several suites for teaching, including 6 class rooms, 2 amphitheatres (seating capacity of 100 each), physical and mechanical laboratory, chemical laboratory, store rooms for materials, museum of industries, library, etc. In the centre is a large graded semicircular amphitheatre with a seating capacity of 600.

In addition the pupils have at their disposal a large waiting room, hygienic toilet rooms and shower-baths.

The class rooms are large, well lighted and commodious, and appliances of the most up to date type are found for the carrying on of experimental work.

The school furniture was built especially for this institution, and is most complete.

The very adequate apparatus used in connection with the teaching will be further added to by the models and patterns to be made by the pupils.

The Workshops.

These are laid out exactly like shops in industrial concerns, and are provided with machinery both modern and complete.

In the centre is the production plant for the production of motor power, light and heat, while all around are situated the various buildings, Forge, Foundry, Machine-shop, Wood-working, Pattern-making and Electrical departments.

The Machine Shop.

This shop has an area of 11,340 square feet. The machinery has been selected from the finest mechanical products of four countries. Electrical ma-

chines from Nancy, France, stand next to mechanical appliances from Birmingham, England, and near implements made in Montreal, Chicago and Pittsburgh.

The equipment comprises 10 plain lathes of 10″; 12 screw cutting lathes of different makes from 12″ to 18″; Pratt & Whitney tool-room lathe; geared head Henley lathe; 3 screw machines, one of which is automatic; 4 shapers; 2 planers; slotting machine; 11 drills from 10″ to 20″; Brown & Sharpe universal milling machine; plane and vertical milling machine; profile milling machine; one pentagraph milling machine; universal grinding mechine; gear cutter; 5 tool grinders; buffer; 2 centering machines; 2 mandrel presses; 2-ton portable crane.

There are also the following large machines, each driven by its own 15 h.p. electric motor; 6 screw-cutting lathes with attachments; 30″ vertical lathe; chucking lathe; 3-ft. radial drill; horizontal boring mill; 8 floor planers.

The space reserved for erecting is provided with a 3-ton travelling crane.

The tool store contains a full line of hand tools, measuring and tracing instruments such as are usually used in the best shops, also 2 Stewart combination gas furnaces. 80 vises and 160 sets of individual tools complete the installation.

Forge.

(Area, 5,210 square feet). It comprises 24 Sturtevant forges, 24 anvils and one Buffalo Heating Furnace. The draft is underground and produced by a 9 h.p. electric fan. A 4 h.p. electric motor provides the necessary blast. The other machinery comprises a steam hammer of 170 lbs.; belt-driven hammer 75 lbs.; an emery tool grinder; bar shear; post drill; 2 swedge blocks; 2 blacksmith vises, and one tool bench and vise.

Foundry.

(Area, 5,210 square feet.) Provided with King cupola, capacity 2 tons per hour; oil melting furnace; Piat combined cupola and a 200 crucible furnace.

This apparatus is made complete with a trolley of the capacity of 2 tons.

An underground installation for compressed air provides for the working of the elevator and the other pneumatic tools and machines. In the foundry also will be found 2 moulding presses; core machine, coning machine; 2 core ovens; sand sifter; sand mill; sand mixer; 2 snagging wheels; torch heater, and finally moulder's benches for 24 pupils.

Woodworking Shop.

(Area 6,811 square feet). The machinery comprises 8 power wood lathes; 4 electric driven lathes of variable speed; electric band saw; circular saw; jig saw; buzz planer; pony planer; mortising machine; tenoning machine; drill; shaper; 2 grindstones; trimmer; automatic bandsaw filing and setting machine; knife grinder; band saw brazer. This shop includes 31 benches with 2 separate sets of small tools for each.

Electricity.

(Area 2,714 square feet). This shop, adjoining the machine shop, can make use of all the machinery in the latter.

In addition, the following machines are specially installed for this section:

Armature banding and heading machine; notching press; shear; pair of smoothing rolls; buffer.

To the electrical shop is annexed an electro-dynamics laboratory comprising the following five groups of rotary transformers: 1—One single-phase asynchrone motor coupled with a direct current dynamo. 2—One direct current motor coupled with a three phase generator. 3—One series dynamo with shunt dynamo. 4—One six-change commutator. 5—One direct current motor coupled with an alternator giving single-phase, two-phase, or three-phase current, as desired.

A specially constructed switchboard for experimental purposes provides for the making of any electrical connections or measurements which may be desired.

Cost of Maintenance and Establishment.

The total cost of establishment was $850,000, of which $150,000 was spent on the site, in round figures $100,000 on equipment, and $600,000 on the building, including heating system, etc.

The total amount expended yearly for salaries is $25,400.

The Principal, who is also the Principal of the Quebec Technical School, receives a salary of $3,750, $2,000 of which is paid by the Montreal School, and $1,750 by the Quebec School. He is also provided with a suite of rooms for himself and family.

The professors are paid from $1,400 to $1,800; the Superintendent of the shops receives $1,800, and the foremen who are in charge from $1,000 to $1,200.

Until the present year the Government contributed $20,000 and the City of Montreal $25,000 toward the cost of maintenance. This, however, proved to be insufficient, and their subsidies will be hereafter $40,000 each a year. Out of total receipts, including the fees, have to be deducted interest charges and sinking fund, a total of $38,700.00.

The other main expenses are: coal, $4,500; raw material and laboratories, $2,700; insurance, advertising, repairs, general expenses, $2,700; water, etc., $850—making a grand total of $74,850.

The total issue of bonds guaranteed by the Provincial Government will be $800,000 at 4 per cent., and the subsidies of the Government barely pay for the interest and sinking fund.

Administration and Staff.

The administration is in charge of a corporation consisting of 11 members, of whom 4 are appointed by the Lieutenant-Governor in Council, 2 by the Council of the City of Montreal, 1 by the Council of the Montreal Board of Trade, 1 by the Council of the Chambre de Commerce of the district of Montreal, a delegate of the "laboring classes" appointed by the Lieutenant-Governor in Council, a delegate of the Canadian Manufacturers' Association appointed by the Lieutenant-Governor in Council, and the Principal, who is appointed by the Lieutenant-Governor in Council on recommendation of the other members of the Board.

The school administration staff consists of:—Principal, who reports to the several committees of the Board: Assistant Secretary-Treasurer, who is also Chief Accountant: Assistant Accountant: Clerk (in French "surveillant") who directs the class movements during the day, and attends to correspondence concerning the pupils, registering and reporting absences of pupils, etc.

The staff for theoretical instruction consists of:—The Principal, 2 Professors of Mathematics and Mechanics, (one French, one English), 2 Professors of Drawing and Technology(one French, one English), 2 Professors of Physics, Chemistry, and Electricity (one French, one English).

The staff of workshop instructors consists of:—Superintendent of shops, who, under the control of the Principal, oversees all work of the several shops, 2 instructors in machine shop, 1 instructor each in forge shop, foundry, woodworking shop and electricity shop.

The Superintendent and all workshop instructors teach in French and in English, and are efficient in both languages. All the workshop instructors are practical foremen in their respective trades, and were appointed as the result of a competitive examination. The engineer also gives practical instruction in the boiler and engine rooms.

Objects and Courses.

The object of this school is to prepare young men for industrial careers, providing them with adequate instruction, and affording them opportunity to pursue practical and technical studies which will enable them to acquire a proper knowledge of mechanical trades and industry in general.

The school gives day courses, called normal courses, and night courses, called special courses.

The normal courses are given in the two languages, and the special courses in either French or English according to requirements.

Day Courses.

These courses are organized principally for the benefit of young men who, having recently finished their primary tuition, are anxious to acquire manual proficiency and all the technical education necessary to become skilled mechanics, capable foremen, or shop superintendents.

These courses are preparatory to the following callings; pattern-maker, woodworker, machinist-fitter, lathe-hand, electrician, blacksmith, draftsman, and in general to all positions connected with the metal, wood or electrical industries.

The length of the course is ordinarily three years.

No pupil can pass from one year to the next without obtaining the minimum number of marks required by the rules.

Pupils who have passed a satisfactory examination at the end of the course, will receive from the Board diplomas stating the respective course followed in each case.

The instruction is both theoretical and practical. The former is always of a technical nature, comprising principally arithmetic, algebra and trigonometry,

elementary and descriptive geometry; general physics and industrial physics; electricity; general mechanics and applied mechanics; drawing in all its branches; industrial technology, and other subjects approved by the Board of Directors. Lectures may also be given on special subjects which might not require a regular course.

The practical instruction is given in the five following shops: wood-working and pattern-making, foundry, forge, machine-shop, and the department of electricity.

During the first year, pupils are not specialized; they spend 4 successive periods of about 2 months each, in the machine-shop, wood-working department, forge and foundry.

The day courses are given in the two languages, the pupils being divided into two distinct sections, English and French, according to their choice. Both sections are, however, united in the workshops.

The present attendance is: first year 65, second year, 40, third year, 20. The following table shows the provision for each subject in each year.

Subjects Taught.	Weekly Time-Table.		
	1st Year	2nd Year	3rd Year
Workshops	15	19½	19½
Industrial Drawing	6	6	6
Construction of Machines	1½	1½	1½
Mechanics	1½	1½	1½
Geometry	3	1½	1½
Arithmetic and Algebra	1½	1½	1½
Physics	1½	1½	
Chemistry	1½	1½	1½
Electricity (general course)	..	..	1½
do. (special course)	..	(3)	(3)
Technical Conversation in French	..	1	1
Total hours	31½	35½	35½

Evening Classes.

These classes are organized with the object of giving to workmen or apprentices already employed in the different industries, various kinds of technical knowledge which may help them in their calling.

They are of an absolutely practical nature and will comprise two grades.

The evening classes are given in the two languages, the pupils being divided into two distinct sections, English and French, both in the class-rooms and in the workshops.

Evening classes are wholly practical and were organized for the year 1912 for mechanics, wood-turners, pattern makers, blacksmiths, moulders, electricians, chauffeurs, firemen and stationary engineers, and draftsmen.

The classes for iron workers and woodworkers include shop work, elementary mechanics, elementary mathematics and industrial drawing. The classes for electricians include lectures on the theory along with laboratory work and practical demonstrations in the testing-room. These courses, however, do not include shop work.

The classes for automobile construction are both theoretical and practical, and deal with the construction, repair and operation of the automobile, but they do not as a rule include outside demonstrations with the machine. For this, however, arrangements can be made if necessary.

The classes for firemen and stationary engineers provide instruction for the running of steam apparatus and on repair work thereon; also the operation of gas and steam engine and electrical apparatus, with a few lessons on industrial electricity.

In addition to the foregoing classes, a course in industrial drawing is provided which all are strongly advised to take.

These classes last six months (October to March), and are open to applicants who have had an elementary education; at present the total attendance is 470.

FEES.

The fees are $2 per month for the classes including workshop; the school provides, free of charge, tools and materials.

Courses in automobiles, $2 per month for each course.

The fees are $1 per month for the other courses, as follows: electricity, firemen and stationary engineers, and for those who wish to specialize in mathematics, industrial drawing, or mechanics.

PROVINCIAL DOMESTIC SCIENCE SCHOOL, MONTREAL.

Courses in Domestic Science have been established in the building of the Montreal Technical School; but the provision, while up to date, is not so extensive as that for the boys.

This school was incorporated by an Act of the Provincial Legislature in 1906 and receives approximately $1000 a year from the Provincial Government. It receives in addition free rent, heat, and light from the Montreal Technical School.

Courses of Study.

Courses are provided in both English and French.

The French classes comprise the following:

I. Cooking, dressmaking, mending, fashions, fancy work, household science, common law, gardening, household bookkeeping, hygiene, practical medicine, apologetics, and religious instruction.

The courses are divided as follows:

(1) A normal course for teachers of domestic science, from the beginning of October to the end of April.

(2) A vacational normal course of three weeks during the month of July.

(3) A vacational normal course of three weeks for nuns during the month of August.

(4) Course open to the general public from the beginning of October until the end of April.

II. The English classes comprise the following:

Cooking, sewing, dressmaking, millinery, and laundry work.

SOME GENERAL MATTERS.

Further information obtained from MR. ANTOINE MACHERAS, Principal, Montreal and Quebec Technical Schools.

At present the program of the school is intended for the preparation of journeymen and foremen for the industries, and will not include preparation for the University. The principal object is to help the industries, principally those concerned with wood, mechanics and electricity.

The certificate course will comprise the teaching of mathematics, drawing, design, science, mechanics, physics and chemistry.

Space is reserved for instruction in the building trades, but that course is not specially organized, though it is intended to do so as soon as possible. This part would be more in night classes than in the day time. It is proposed to give attention to the clothing and textile branches and leather industries as soon as they can be provided for, whenever the demand is made. The intention is to provide opportunities for the workers in the main industries of Montreal as soon as the demand comes to the school in sufficient numbers, and to provide both day and evening classes.

We intend to provide opportunities for women in domestic occupations; and this department is now actually in operation.

The qualification for admission for the moment corresponds about to the standard attained in the highest class of a good primary school. This may be modified to suit the trades and industries. We will exact a certain standard for admission. We will have to choose principally for the day course the best men, and we will exact from them more than the ordinary primary school course, the object being to make sure that those who get in will be able to profit by the course, which they cannot do without sufficient education.

The course will be given in both languages.

The general diffusion of Technical Education throughout France has done much for the advancement of the industries and the prosperity of the working people of the nation. The more Technical Education there is, the more benefit there is to the nation and the industries. There are evening courses in every town in France for the benefit of the working men, but there is not a regular technical school in every town. The existence of those courses and classes has not caused much modification in the course in elementary schools to prepare the pupils to reap advantage from the Industrial and Technical Education, for the primary schools in France were very much advanced, and it was not necessary to modify the course. At 12 years, and sometimes 11 years, children can be admitted to the Technical School in France.

THE QUEBEC TECHNICAL SCHOOL.

The Quebec Government has provided also a Technical School for the City of Quebec which is three-fifths of the size of the one in Montreal, and is constructed on practically the same lines.

The two Corporations are distinct, and each has its Board of Directors.

Funds for construction and equipment were obtained by the issue of 40 year 4 per cent. bonds guaranteed by the Quebec Government, both as to capital and interest.

The Principal of the Montreal school is principal of the Quebec one also, spending part of his time in each, and having his home in Montreal.

The instruction, rules and regulations, etc., are identical in both schools. Fees, day classes, are the same. Fees, evening classes, in Quebec, are $1.00 per month for all courses, except automobile course which is $2.00 per month. In Quebec the weekly attendance of pupils in day classes, is six hours more than in Montreal.

CHAPTER XXXI: THE POLYTECHNIC SCHOOL OF LAVAL UNIVERSITY, MONTREAL.

Laval University has 4 Faculties—Theology, Law, Medicine and Arts, and 6 affiliated establishments, viz. the Polytechnic, Schools of Medicine, Dentistry, Pharmacy and Agriculture, and the School for Girls.

The Veterinary School has been affiliated since 1886, and has courses in the humanities as well as in veterinary surgery and science.

The School of Dentistry, in Montreal, at present only takes French-Canadians, but will take English students later. It has a 4 years' course. The School of Pharmacy is for chemists and druggists, apart from the medical course.

The Agricultural School at Oka, under the direction of the Trappist monks, was affiliated in 1908. The University gives degrees and diplomas and conducts examinations every 6 months. It has full laboratory equipment, and teaches scientific agriculture. The courses are preparatory, secondary and superior, of which the two latter lead to diplomas.

The affiliated Polytechnic School takes the place of the Faculty of Applied Science in other Universities, and the Oka School takes the place of the Faculty of Agriculture.

Mr. Ernest Marceau, President, stated that the Federal Government gives $2,500 for Railway Management and Transportation courses; the G.T.R. and C.P.R. give $2,500 each, and the Provincial Government has promised the same amount.

The condition of the Government grant is that Railway Engineering and Transportation shall be taught in a special department. There is no control on the part of the Government over the expenditure of this grant, but the course is submitted and a report is made of work done. The Government grant is given by the Intercolonial Railway system through the Department of Railways and Canals.

Graduates easily find employment with Railways, Canals and the Marine Department, and many go to the United States for supplementary training in iron works, especially to Pittsburgh, afterwards returning to Canada for employment. Many are in private practice. There is not demand for more graduates than are at present turned out. Workmen are not trained; students get laboratory practice, but are not turned out as mechanics. Students take practical work in their vacations, and 3rd and 4th year men have a surveying expedition for 3 or 4 weeks. They also visit industrial establishments in Montreal.

Mr. Marceau considered that the Federal Government should subsidize Technical Education, because men go from here to other Provinces, and help to develop them.

The graduates go all over Quebec, Ontario, the United States and many find employment in the Public Works Department at Ottawa.

The Department of Architecture has been a success. The Professor is a graduate of the Ecole des Beaux Arts at Paris, and the students make excellent progress. Attention is given to economy and safety in construction as well as to the decorative side. Very few students have any knowledge of drawing when they come, but in three or four months they are doing well, as the professor is an enthusiastic teacher.

Mr. Alfred Fyen, Director at the Polytechnic, plans the course of studies. The Civil Engineering Course is based on that of other schools, but adapted to local needs. The Board of the Institution may ask questions at examinations. This Board is composed of engineers, not teachers. Most of the teachers are practical engineers; it is a good thing for the school to keep in touch with practical men, and the latter learn from the school. The matriculation examination, which is given in English and French, maintains a high standard of mathematics. Civil engineers need to know both languages in Canada.

Mr. Jules Poivert, Professor of Architecture, stated that he had been in Canada a year and a half. He practised in France previously, but never taught. He had never met students less prepared than here, and stated that the elementary schools in France gave a better preparation. The interest of the students must be aroused by pointing out to them the beautiful things they are to do. The same method could be used in evening classes for working men. Modelling is a good thing, if associated with drawing, but he questioned whether modelling helps pupils to draw. Drawing develops the habit and power of observation in children, and is a desirable, if not essential, part of general education.

PROGRAM OF FOUR-YEAR COURSE.

I. Engineering Division.

A. Science Section (2 years).

Algebra, Astronomy, Architecture, Differential and Integral Calculus, Inorganic and Organic Chemistry, Physics and Electricity, Geometry, (descriptive, pure and applied), Analytic Geometry to 3 and 4 dimensions, Machinery, General Mechanics, Cinematics, Statics, Dynamics, Physics, Topography and Surveying, Drawing, (freehand, geometrical, industrial), Chemical and Physical Laboratories, Surveying Expeditions, Graphic Work.

B. Technical Section (2 years).

Chemistry (analytic and industrial), Applied Cinematics, Construction, Construction and Planning of Railways; Electro-technics (continuous and alternating currents), Electrical Measurements, Geology and Mineralogy, Metallurgy, Mining, Bridges, Industrial Thermodynamics, Thermic Machines, Laboratories (chemical, analytic and industrial, electrical, mineralogy, metallurgy, thermodynamic), Operation of Railways, Operation of Mines, Projects and Drawings, Visits to Industrial Establishments.

II. Architectural Division.

This covers 4 years or more, divided into two classes. *1st Class*. Drawing—geometrical, pen and ink, color-wash, water-color, freehand, shading (theory), Modelling from plaster cast, Chemistry applied to construction, Physics applied to construction, Geometry (descriptive), Stereometry and Perspective, Elementary and Graphic Statics, Elements of Construction, Elements of Architecture, Architectural Composition, Plans and Elevations.

2nd Class (of pupils promoted from 1st Class). Drawing—elevations, competitions, worked out in three styles, Modelling, Construction, Theory of Architecture, Architectural Composition, Building Laws, History of Architecture, Archaeology, Hygiene, Heating, Ventilation, Estimates, Supervision, Contracts, Accounting, Functions of the Architect, Visits to Building Works.

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CHAPTER XXXII: McGILL UNIVERSITY.

SECTION 1: INFORMATION OBTAINED FROM Dr. WM. PETERSON, PRINCIPAL AND VICE-CHANCELLOR.

The aim of this institution is not only to teach the very highest grades of science, but to keep the different branches in touch with each other. The great service of the University can do is to include in its sphere every branch of public usefulness that will enable it to serve the common good. Such work deserves national support—not merely local, for the work is national, binding together the young men and women from all parts. There are now 60 graduates overseas, and 20 students west of Winnipeg. Greater appreciation is needed, especially on the part of the Federal Government, which is thoroughly out of touch with the great centres of learning in the Dominion.

Up in Ottawa they do not know what is being done for the training of those who are to be the next generation in this great country of ours; and by a curious interpretation of the British North America Act they hold that they are debarred from showing any interest. In the minds of certain distinguished lawyers there is nothing in that Act to debar the Dominion Government from interesting itself in Technical Education as much as in Naval and Military Colleges and Physical Training under the Strathcona Trust. In the matter of the Strathcona Trust all that was necessary to be done was what was done by the Federal Government—to get the consent of the Provincial authorities. That same consent could be asked for in connection with Technical Education, and no doubt would be given by all the Provinces.

McGill a Pioneer in Technical Education.

Dr. Peterson came to McGill 16 years ago from a Scottish College (Dundee) which had in connection with its curriculum just such a Technical Institution as McGill but with evening as well as day classes. In both England and Scotland the places of higher learning minister to the needs of the artisan. The Manchester Institute of Technology, one of the greatest in the Old Country, has a working partnership with Owen's College. In Dundee the Technical Institute had organic connection with the University College there.

The development of manufactures in places like Montreal, and in Canada generally, would make it necessary, Dr. Peterson thought, for some central authority to take action in regard to the Technical Training of workmen. Had it not been for "this little outbreak at McGill 20 years ago", this part of the country would have had nothing to show in the highest form of Technical Education. Canada has begun at the right end of this matter, for McGill, the pioneer of Technical Education in Canada, was fortunately begun on German rather than on English

lines. England spent vast sums on elementary science scattered broadcast among members of the industries so as to make the individual more fit for his work, but for a long time neglected Technical Institutes, such as those in Germany, for training captains of industry.

German and British Methods Contrasted.

Germany began at the very highest because it had leaders of eminent standing —its schools having been in a thoroughly efficient condition both as regards literary and scientific condition before any other country in Europe waked up to the need of a national system of education at all. England began with the Science and Art Classes, and is only now beginning to fill in with the institutions that the British Government is now subsidizing. Private colleges are becoming Universities, e.g. Manchester, Leeds, etc., and in them England is doing work fit to rank with that of German Universities.

"If I were going to investigate for this country," Dr. Peterson added, "I would not go outside of the City of London under the auspices of the London County Council. While I have been disparaging what England did thirty years ago, compared with Germany, England has picked it all up now, and to-day we have a great deal to learn from England."

The Value of Leaders.

For the material advancement of industries one captain is worth six of the rank and file. The work of teaching the mechanic is necessary, of course, and Canada ought to be doing this national work. If such work had not been done largely by one individual more or less as a private enterprise, it certainly would have to be done by somebody. It is a national service that an institution like McGill does, and if rich citizens (such as Sir Wm. Macdonald) who found it gratifying to spend their money in this way had not been doing such work, the Government of Canada would have had to do it, else the country's interests would have been seriously prejudiced.

The 100 men, who go out every year from this faculty at McGill to exploit Canada's industries, connect themselves with works of practical usefulness such as engineering, and have done great service in making known Canada's potentialities. It would have meant a great loss to the material interests of Canada if those men had not gone out.

McGill is not altogether utilitarian in its work; the practical branches are illuminated by the other fully equipped departments of the University.

Basis of Technical Education.

The phrase "Technical Education" itself is apt to be very misleading. Some people pursue it as though it contained within itself some panacea that would put right everything in education that is out of joint, and heal all possible trouble. But "Technical Education" is nothing but a phrase. It means something altogether different not only for different industries but even for different portions

of the same industry. Technical Education must rest upon a sound basis of general elementary education. Without that it would be a very gross delusion to speak of it as though it were something that could be superimposed on an Elementary Education which is admittedly defective.

For the Province of Quebec this is a matter of the very greatest importance, for having served fifteen years on the Protestant Committee of the Council of Public Instruction, Dr. Peterson knew that, until more money is forthcoming for schools, you will not have in the Province of Quebec an education really worth the name. Teachers must have adequate remuneration, and must be competent, and until public opinion justifies spending more on education, the search for Technical Education may lead us far afield, for we shall have people asking for Technical Education who are unable to profit by it.

Germany Generous to Technical Education.

In Germany the people are willing to spend money on Technical Education; here they still distrust the professor, forgetting that some of the greatest achievements of this country owe their origin to the man in the laboratory who is not personally interested in the application of his discoveries, but who shows the way to those who do apply them to the advantage of the country. He cited the instance of aniline dye which was invented in England and stolen bodily by the Germans, and he believed still remained with them. As an illustration of German enthusiasm for Technical Education he told how the friends of Berlin University, under the inspiration of the Emperor, on its recent 100th anniversary collected $2,500,000 for scientific research, whilst a new library was presented, also $50,000 for travelling scholarships. That University is only twenty years older than McGill.

The Universities of this country ought to relate themselves in every possible way to the public service. By Technical Education Dr. Peterson understood the application of science to industry; a scientific basis of lifework; and opportunities to all to become masters in their craft. No institution can supplant workshop training; it can only supplement it. Sir Oliver Lodge defined Technical Education as training in scientific principles which will help the promising youth out of the dull slough of routine to the table-land where he can look about him and assume some intelligent control over his own life. Such Technical Education is wanted not only for leaders but for working men.

How To Establish Technical Education.

On a sound basis of Elementary Education you should have elementary science —not University work, but groundwork—to have students become saturated with elementary science, drawing and the foundation of mathematics. These should be sown broadcast through the community, to saturate the minds of young people with elementary scientific ideas on those fundamental subjects. This is what workmen need. Then add mechanical drawing, woodwork and metal work, and all through the courses, drawing applied to trades and industrial arts. Give the workman the elementary principles of material with which he is working, and

spread the net wide to those who can rise to positions as foremen and skilled workers; add to the directive intelligence of people trained in laboratories the general skill and power of the workmen.

Dr. Peterson feared lack of co-ordination among the various agencies in Montreal, and suggested constant conference so as to fit the different parts into each other. He added that McGill is doing much to standardize instruction in the branches it covers, and in bridging the gulf between the University and the crowd, especially in the Department of Music. He quoted from the speech of the British Minister of War (Haldane) at Armstrong College, Newcastle, on the relation of Science to Industry, which contained the motto of a German trade association —"science is the golden guiding star of practice; without science there can be only a blind groping about in the region of undefined possibilities."

Federal Assistance Necessary.

As it is an expensive business to bring Technical Education to the masses, Dr. Peterson thought that part of the cost of a proper scheme reaching from the lowest to the highest should be borne by the Federal Government. He had looked forward to their intervention. It had been urged that no such uniform system as it is desirable to instal could be established except through the agency of some central authority, and that the British North America Act should not be made a barrier, from either the legal or actual point of view, to Federal action in regard to this matter; and at the opening of the Sherbrooke Street School the highest authority in the Dominion had been betrayed into saying that he did not believe there was any bar in the British North America Act to the Dominion taking up the work of Technical Education from the Atlantic to the Pacific. The State in the modern industrial community had to do much that was formerly done under the apprenticeship system. Fortunately precedents were growing up all the time for such intervention, with the consent of the Province if necessary; but he was satisfied that with the growing prosperity of the Dominion it would be a national misfortune if money derivable from such increased prosperity were not made available from the central Government for Technical Education.

McGill's Numbers, Finances, Etc.

Altogether there are about 1600 students in McGill, as against 800 or 900 twenty years ago. The Science students in 15 years have increased from 250 to 570; in Arts they are more numerous than ever before. The University is now doing work not touched 20 years ago. Cost of staff has increased; specialization of industry has resulted in increased cost for a special staff, consequently the total cost has increased.

The British system of grants-in-aid would be suitable. Grants should be given on the report of an expert. 30 years ago £15,000 was given in England to privately endowed colleges; now they get £300,000.

Grants for research work require consideration, and would need a Commission such as that which now administered the scholarships in England.

Value of Elementary Science.

In elementary schools that come before High School there cannot be too much elementary science—not an attempt to master science—not Industrial Training, for this they learn best in the workshops. Manual Training in the schools is appreciated as an enrichment of the curriculum, and makes the children deft and handy. Technical Education means going back to principles underlying the operation, and these should be learned in the school. Science learned out of a book is of no use to children; physics should not be taught unless these is apparatus, and in Quebec teaching it without apparatus is forbidden. Elementary Science could be equally well taught in denominational or secular schools. Quebec has got beyond the idea that there is any opposition between science and religion. Neither race in the Province wishes to part with that form of instruction which will be helpful as a good foundation for individual moral character.

SECTION 2: INFORMATION OBTAINED FROM Dr. FRANK D. ADAMS

Professor Adams is Dean of the Faculty of Applied Science and Logan Professor of Geology.

The movement which led to the establishment of a Faculty of Applied Science at McGill University originated with Sir William Dawson, who in 1858 established a school of Civil Engineering which, after a severe struggle for five years, succumbed to some unfavorable legislation, having graduated 15 engineers. A long period followed in which no instruction in Applied Science was given in the University; but Sir William Dawson in 1870 writes as follows:—"I never cease to lament the small extent to which we have been able to promote the practical application of Science to Art in this University. In a country so lamentably deficient in schools of Art and Applied Science, and yet aspiring to success in those industrial arts, this would be a most useful department of labor for us." Referring to this and some other of his projects which has failed of accomplishment, but which he is confident will be successfully carried out, when favorable circumstances occur, Sir William writes:—"We wait for some Canadian Lawrence or Sheffield to endow for us a Scientific School like those of Harvard or Yale which have contributed so greatly to the wealth and progress of New England."

In 1871 the teaching of Engineering and Practical Chemistry was revived and reconstituted as the Department of Practical and Applied Science in the Faculty of Arts, and in 1878 this Department was separated from the Faculty of Arts and was erected into the Faculty of Applied Science with a staff of three professors—Dr. Girdwood, Dr. Harrington and Dr. Bovey, and two lecturers, Mr. McLeod (now Vice-Dean), and Mr. Chandler.

A few years later the great benefactor appeared, and through Sir William Macdonald's princely generosity the Macdonald Engineering Building was erected, followed in rapid succession by the Macdonald Physics Building and the Macdonald Chemistry and Mining Building. These buildings were not only erected but were

adequately endowed, and with Dr. Bovey as Dean of the Faculty new professorships were established, provision being also made for the appointment of the necessary teachers of subordinate rank; and the Faculty of Applied Science, thus equipped and endowed, became not only the foremost school of the kind in the Dominion but one unsurpassed anywhere.

McGill University was thus the first University in the Dominion of Canada to establish a Faculty of Applied Science. The School of Practical Science at Toronto was affiliated to that University in 1889, while the Kingston School of Mines was not established until 1894.

Growth of the Faculty.

The growth in the number of students in the Faculty about Nov. 10th each year is shown in the following tables:—

Session.	*1st year*	*2nd year*	*3rd year*	*4th year*	*Grad.*	*Part.*	*Total*	*Undergraduates; Total less Partials*
1890–91	25	22	17	11	—	10	85	75
1895–96	64	42	43	29	8	18	204	186
1900–01	72	53	39	43	11	38	256	218
1905–06	102	100	84	67	1	32	386	354
1910–11	191	118	139	111		15	574	559

Graduate School—(Going Forward to the Following Degree.)

	1906–07	1907–08	1908–09	1909–10	1910–11	1911–12
M.A.	10	19	20	35	36	
M. Sc	13	17	33	34	36	
Ph. D.	7	8	11	16	14	
	30	44	64	85	86	

The increase of students is a reflex of the increased interest in industries When the Klondike rush came on there was a great increase in Mining Students When the Transcontinental railways were planned many young men, supposing their services would be required, prepared themselves.

Courses of Instruction Offered.

The instruction given in the Faculty is designed to afford a thorough training, of a practical as well as of a theoretical nature, in the following branches of Applied Science:—

I. Architecture.
II. Chemistry.
III. Chemical Engineering.
IV. Civil Engineering and Surveying.
V. Electrical Engineering.
VI. Mechanical Engineering.
VII. Metallurgical Engineering.
VIII. Metallurgy.
IX. Mining Engineering.
X. Transportation.

The course of study in every case extends over four years and leads to the degree of Bachelor of Science or Bachelor of Architecture, as the case may be. Special Students, taking a shorter course and not proceeding to a degree, are only admitted under very special circumstances. The work prescribed for the first two years is identical in all courses except I. and II. At the close of the Second Year the student must elect which of the several courses above mentioned he desires to follow.

The courses taken by students of the Third and Fourth Years in 1910-11 were:—

Architecture	13
Chemistry	7
Chemical Engineering	7
Civil Engineering and Surveying	72
Electrical Engineering	57
Mechanical Engineering	40
Metallurgical Engineering	7
Metallurgy	3
Mining Engineering	41
Transportation	8

The Department of Transportation is worthy of special mention. Some years ago the presidents of certain of the leading railway systems of the Dominion, having experienced the need of trained men for their service, arranged with McGill to have men specially trained for railroad work. The Department was established under the supervision of the Railway Transportation Committee, consisting of Sir Thomas Shaughnessy, Mr. C. M. Hays, Mr. D. MacNicoll, Mr. C. J. Fleet, Principal Peterson, Dean Adams and Professor Keay. The Department trains men for the following branches of railway work:—

(1) Construction and Maintenance of Way (in Course IV.)
(2) Motive Power Department (in Course VI.)
(3) Operating Department (in Course X.)

About 60 men were in 1911 receiving training which would fit them for entering the railway service of Canada.

Each year a number of graduates have gone into the service of the Canadian Railways, and their work has reflected credit upon the training at McGill.

The University receives from the Railways the sum of $12,500 annually, of which $10,000 is employed in the payment of the salaries of the staff giving instruction in those subjects (Railway Engineering, Railway Economics, Railway Operation, Freight Service, Passenger Service, Signals, etc.), which would not otherwise form part of the curriculum of the University, while the balance of the sum is used to strengthen that portion of the regular work of the Faculty which contributes directly to the training of Railway Engineers.

The cost to the University of training students who subsequently enter the various branches of railway service is probably about $20,000 a year. The difference between this sum and that supplied by the Railways is drawn from the general University funds.

Certain officers of the C.P.R. and G.T.R. are engaged to lecture on passenger service, railway auditing, etc.

Both the C.P.R. and G.T.R. have scholarships here for some of their own men; $200 a year; failure in examination loses it. The University has arrangements with the railways for taking men who have been trained.

Where the Students Come From.

The students of the Faculty are drawn not only from the Province of Quebec but from all parts of Canada, from Great Britain and many other parts of the Empire, as well as from many foreign countries, as shown by the following table:—

	1st Year	2nd Year	3rd Year	4th Year	Special	Total
Quebec	94	60	54	41	10	259
Ontario	37	23	37	25	2	124
Nova Scotia	2	2	6	4	—	14
New Brunswick	4	5	5	8	1	23
Newfoundland	—	—	2	—	—	2
Prince Edward Island	4	2	4	3	—	13
Manitoba	7	3	1	4	—	15
Saskatchewan	—	1	1	2	—	4
Alberta	6	—	1	2	—	9
British Columbia	9	2	8	9	—	28
West Indies	5	4	3	5	1	18
United States	9	3	5	1	—	18
England	8	9	8	3	—	28
Wales	—	1	1	—	1	3
Scotland	—	—	1	1	—	2
Ireland	—	1	—	—	—	1
Australia	—	—	—	1	—	1
South Africa	1	1	—	2	—	4
Rep. of Columbia	1	—	—	—	—	1

	1st Year	2nd Year	3rd Year	4th Year	Special	Total
Mexico	—	1	—	—	—	1
Brazil	—	—	1	—	—	1
Peru	1	—	1	—	—	2
Ecuador	1	—	—	—	—	1
Switzerland	1	—	—	—	—	1
Unclassified	191	118	139	111	15	574

These numbers, reduced to percentages, show:—	%
Quebec	45.12
Ontario	21.60
Nova Scotia	2.44
New Brunswick	4.01
Prince Edward Island	2.26
Manitoba	2.61
Saskatchewan	.70
Alberta	1.57
British Columbia	4.90
CANADA	85.21
United States	3.13
Great Britain	5.92
Rest of Empire	4.35
Other Countries	1.39
	100.00

These figures do not include the 31 students in the First and Second Years of Applied Science in the McGill University College of British Columbia, which is now one of the Colleges of McGill University.

As will be seen from the above table, about 45% of the students come from the Province of Quebec, while about 40% come from other parts of the Dominion; 83 students come from abroad, 34 of whom come from Great Britain.

The Faculty as compared with the various other seats of learning in North America is thus a very cosmopolitan body, having a greater number of students coming from other parts of the Empire and from foreign countries to McGill than there are students coming to Universities of the United States (with the one exception of the University of Pennsylvania) from countries lying without the bounds of the Republic. A further comparison shows that there are only five Universities in North America, (all of them having a very much larger number of students than McGill's Faculty of Applied Science, or, in fact, than the total enrolment of McGill University) which have by actual count a larger number of students from abroad than the McGill Faculty of Applied Science.

Length of Session and Character of Instruction.

The length of the college session varies somewhat in different courses and different years; it averages about 8½ months. During this time the students are

receiving instruction at Montreal, consisting of lectures and tutorial work in the class-rooms; demonstrations and practical work in the laboratories and drafting rooms; courses of instruction in the machine shop, carpenter shop, smith shop and foundry; field work in surveying, etc. The distribution of the students' time between the class-room, laboratory, workshop and field varies according to the requirements of the professional work of each course.

The School for Surveying Fieldwork, held each year during September, is under the direction of Professor McLeod, is very thoroughly organised, very completely equipped, and does excellent work. The students taking this work go under canvas during the entire month, the University having one large camp at Bord de Plouffe and another at the top of the Little Mountain. In these camps the students live and devote their time entirely to the practical study of the various branches of surveying.

The Field School in Mining, which is an obligatory part of the course in Mining Engineering, is required in the case of all men entering the Fourth Year. The work of this field class, dealt with more fully in Prof. Porter's statement, has been found of the greatest value, as it at once introduces students to the practical side of their professions, broadens their views on the resources and industries of the country, and prepares them for the advanced studies of the Fourth Year.

There is also a Summer School in Geology for Mining students.

Work During Vacation.

The Faculty of Applied Science owes no small measure of its success to the manner in which instruction in principles and practice of Applied Science have always gone hand in hand. After spending 8⅓ months at the University in formal instruction as detailed above, the students, although not absolutely compelled, are strongly advised to take up work on Surveys, or in Mines, Machine Shops, etc., thus entering the actual practice of the profession for which they are in training. In the summer work they take their places on the field parties, in the mines, or in factories, doing the same work as regular employees of companies, returning to McGill at the opening of next session to resume their University work. The student spending three consecutive vacations in actual practice in this way, obtains an admirable introductory training for his professional work. Thus 306 out of 354, or 86½ per cent, of the students of the Faculty worked during the summer of 1910 for an average of 3·2 months, the details being as follows:—

1 month or less	23
2 months	56
2½ months	22
3 months	66
3½ months	21
4 months	77
5 months	41
Total	306

The character of the work secured and the number of men who followed each kind of employment are here shown:—

Employment.	*Number of men.*
Mining and Ore Dressing	30
Surveying	67
Prospecting	1
Drafting and Designing	17
Machine Shops	50
Construction and General Contracting	52
Electrical Work	31
Metallurgical Work	4
Chemical Work	6
Architectural Work	6
Bookkeeping, Clerical Work, Railway Operating, etc	35
Farming, Fire Ranging, etc	7
Total	306

Of these men about 80 were engaged in work for one or other of the Canadian railway systems; some of them in railway surveying, others in drafting or construction work, and others in machine shops.

A course of this kind, combining instruction in the principles and practice of their work, affords an ideal training for students in Applied Science.

Reading and Languages.

During the vacations at the close of each of the first three years the students are also required to read and pass an examination upon certain books. Those required from the students entering the Second Year are certain well-known English classics. Books dealing with certain great economic problems which present themselves in modern industrial development, are assigned to students entering the Third Year; or, in place of such reading, these latter may submit an essay on some engineering or allied subject, preferably one with which they have been occupied during the vacation. Such an essay is required from each student entering the Fourth Year. We do not require a higher standard in literature and language than the School of Practical Science in Toronto; in French we do. Our English should be much higher, but we cannot get it from the schools. Common schools should teach English better, especially clean and precise composition, and the University would benefit thereby.

Buildings and Equipment.

The Faculty is housed and its work is carried on in the Macdonald Engineering Building, the Macdonald Chemistry and Mining Building, the Workman Building and the Macdonald Physics Building. The students also receive a portion of their instruction in the Redpath Museum and the Redpath Library.

NUMBER OF GRADUATES IN THE FACULTY OF APPLIED SCIENCE.

Total number of graduates now alive, including the Class which graduated in the year 1909	879
Number of deceased graduates	47
	926

Including the 15 who graduated in the old course of Civil Engineering, which antedated the inauguration of the school in its present form, the following list gives (so far as present addresses are known), the distribution of Applied Science graduates:—

Australia		2
Belgium		1
British Guiana		2
Canada:—		
Alberta	29	
British Columbia	50	
Manitoba	25	
New Brunswick	13	
Nova Scotia	30	
Prince Edward Island	3	
Ontario	200	
Quebec	274	
Saskatchewan	2	
		626
Chili		1
China		1
Cuba		1
England		12
Hawaiian Islands		2
India		1
Jamaica		6
Japan		1
Mexico		7
Newfoundland		5
Peru		3
Porto Rico		1
Russia		2
Scotland		2
Siberia		1
South Africa		5
Spain		1
Switzerland		1
United States of America		133
Wales		1
		818

These numbers, reduced to percentages, show:—	%
Alberta	3.55
Saskatchewan	.24
British Columbia	6.11
Manitoba	3.05
New Brunswick	1.59
Nova Scotia	3.67
Ontario	24.45
Prince Edward Island	.36
Quebec	33.49
CANADA	76.51
United States of America	16.27
Great Britain	1.83
Rest of Empire	2.57
Other Countries	2.82
	100.00

A very important movement relating to the work of the Faculty was inaugurated in 1909 by the graduates in Applied Science. This was the organization of the graduates of the Faculty, and the establishment by them of an office in Montreal. Nevil Morton Evans, Esq., M.A. Sc., Associate Professor of Chemistry, was requested to act as Honorary Secretary for the graduates, and in his office (Chemistry and Mining Building, McGill University) a list of the graduates is kept, with their correct addresses, their occupations, etc. From time to time the Secretary also issues to all graduates Bulletins of information concerning the Faculty and its graduates. To the Honorary Secretary also all communications from graduates desiring positions, or from older graduates who desire to secure the services of younger men, are directed. This movement has already proved to be of great value, and will, it is believed, be of ever increasing service and importance as the work of the Faculty develops.

Cost of a Course of Instruction in the Faculty of Applied Science.

The fee for the regular course of study is $200 per annum, except in the case of students in the Department of Architecture, who pay an annual fee of $150. The total cost of following a regular course of study in the Faculty (including fees) may be stated to be $450 for each session of 7 months. A student can live more comfortably if he can spend $550. In certain years of several of the courses an extra month of residence is required, for which a proportionate expenditure must be added.

The great majority of the students, by working during the summer, can not only provide for their summer expenses but can earn enough money to substantially assist in defraying the cost of their education during the succeeding winter while at college. Some few men pay the entire expenses of their college course by money thus earned.

There are a number of prizes and two or three Exhibitions and Scholarships open to students of the Faculty; and a fund has recently been established by the graduates of the Class of 1899 from which loans are made to students who, having completed their Second Year, require financial assistance to enable them to complete their course of study.

Possibly the large fee here tends to keep out shirkers, because if a man fails in three subjects he is sent home. Even with large fees, the Faculty falls behind, for the fees cover only 33% of the cost. The fee was raised from $150 to $200 because of the deficit.

SECTION 3: INFORMATION OBTAINED FROM PROFESSOR CLEMENT H. McLEOD.

Professor McLeod is Vice-Dean of the Faculty of Applied Science and has had long experience in training Engineers.

The University gives no credit for Manual Training, though this and Drawing would help students in their work at McGill. If the University were to recognise the value of Manual Training for matriculation, the schools would provide it, and if obtainable in schools the University might exclude it from its course and replace it with something else.

Very few students have had good Elementary Drawing at school. If an option were given for Drawing and Manual Training instead of language, it would be diminishing the requirement of general educational attainment in training engineers. Manual Training and Drawing could not take the place of French, for though they are important to develop general intelligence, they do not give the power of expression and of reading works not attainable in English. If the University gave recognition to Drawing and Manual Training, the schools would need a year longer, and students would come to the University a year later. The University is beginning to feel that another year is needed in engineering courses; and this might be the solution. More efficiency will be required in engineering as time goes on, and the University should encourage those things in the school curriculum that would help students to attain that efficiency.

Perhaps school education should recognize a branching off to University and industrial sections before the matriculation standard is reached. If the University recognized Drawing and Manual Training as necessary for matriculation, both would be desirable and the University would get the benefit of them in both places. If students came up a year later with these additional attainments, they would reach a higher standing in the college courses.

Vacation work has proved most valuable; the student is able to utilize his holidays in practical service, applying the theory he has learned. Some think it a good thing to take a year out of college, between the 2nd and 3rd or 3rd and 4th years, in order to mature the student through practical work, teaching him to appreciate better his college work, to realize its value for his own life and to recognize what he needs most in college.

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SECTION 4: INFORMATION OBTAINED FROM Dr. J. B. PORTER, PROFESSOR OF MINING ENGINEERING.

McGill University students are required when entering to show a good knowledge of mathematics, of one modern and if possible one ancient language, and of the usual English and general subjects of the higher schools. They then devote their time for two years to advanced mathematics, physics, chemistry, elementary mechanics and surveying. They also give a great deal of time to drawing and to shop work. In addition to their studies in the University they are required to do one month of each year of extra-mural work in surveying.

Up to the end of the Second Year, all engineering students take up the same course; after that differentiation begins, mining and civil engineers giving more time to surveying and surveying field work, while electrical and mechanical engineers spend additional time in the drafting rooms and machine shops.

In the Third Year in the Mining and Metallurgical courses, lectures are given on the elements of mining, metallurgy and ore dressing, and final work is done in the more general engineering subjects.

At the end of this year the class is taken to the field and five weeks are spent in studying mines and metallurgical plants under the personal direction of the staff of the department. The district visited is carefully chosen with a view to offering the students the best possible opportunities for observation. This is necessarily at a distance from Montreal, generally either in British Columbia or in Nova Scotia. Special cars are provided, and the class, usually numbering 20 to 25, spends a month or six weeks in studying the mines and smelters in various parts of one or other of these provinces. The method in general is to first spend ten days or a fortnight in one particular mine or works, thus familiarizing the students with the plant and making them quite at home in it. The remainder of the period is spent in visiting other works, one or two days being given to each, and the differences in method, etc. noted and studied.

During these excursions, which are ordinarily carried out in a private car chartered for the purpose, students and staff live together, and informal lectures and discussions are held whenever practicable, in order to call the attention of the men to salient points of interest.

While this class work is going on arrangements are made with the managers of the plants visited to take on individual students for the remainder of the summer as workmen. In this way it has always proved possible to provide employment for all men who have not already secured engagements for the summer, and at the end of the field school the class disbands, not to play for three months, but to go to remunerative individual work.

On the return to the University in the autumn the detailed technical and laboratory work already referred to is seriously begun. Certain typical operations are performed by the whole class, such as a stamp mill run, the concentration of a lead or copper ore, and a short campaign with a copper or lead blast furnace. The main work of the succeeding six months is, however, individual, and each

man is encouraged to take up some investigation which is especially interesting to him, such as the concentration of the ore from some mine in which he hopes to obtain employment, or the smelting of a particular material, etc. This individual study is under the eye of competent instructors, and assistance is given when needed; at the same time, and, when possible, in the same connection, the student is required to design work and to prepare approximate specifications and estimates.

The University course thus closes with a year of work as practical as possible, yet so laid out and directed as to be theoretical as well, and at its end the student is sent out to begin the practice of his profession. His education is, however, but half over, and if he wishes to achieve high success in the end, he must content himself with a subordinate post for many years, and work hard patiently to master the details of his special business, to learn to command men and to know himself.

All students take shop work to a certain extent; the first two years is common to all courses; the mining men also get Chemistry. The equivalent for advanced shop work is work in a concentrator or steel work. While this is almost essential, a certain amount of work under instructors is very valuable. Dr. Porter would be sorry to see laboratory and field work replaced even by a longer experience in the practical shop work. This has been shown in English works, where men taught exclusively in the shop did not have the same intelligent and inspired guidance as those in the same shop under a college instructor.

Under Canadian conditions it is better for men to get experience in summer vacations than by taking shop work for a year or two and then taking a college course.

Considerably over 90% of the students take summer vacation work; the University requires 6 weeks field school in the mines, where every man has to work under the supervision of a professor and assistants. In addition to that, 95% spent 6 or 7 months with mining companies.

Students are ill-prepared in English, and do not realize how unprepared they are; their teachers have been incompetent, and the Faculty cannot get the students interested in English. It is too late when they enter, and they find it hard.

SECTION 5: INFORMATION OBTAINED FROM Mr. R. J. DURLEY, PROFESSOR OF MECHANICAL ENGINEERING.

In the woodworking room they had a pattern maker, assisted by a cabinet maker a few hours each week. The supervisor in the blacksmith shop, who was formerly in charge of one of Angus shops of the C.P.R., gives his whole time here now. The Department has the whole time of 5 skilled mechanics, 2 of whom are machinists.

The arrangement of the shop course involves a course of Manual Training in the first year, e.g. elementary woodwork which would not be given here if students had had it at school.

Boys are given a piece of work which they should be able to do at the end of the First Year; and if they do it satisfactorily, they are exempted from the Manual Training course; this should encourage schools to give Manual Training. Only five or 10 students in a year come up with proper training of that kind. Knowledge of tools acquired at school would save time here.

It would not be economical for McGill to teach High School mathematics; students now have to get it elsewhere, as it is called for in the matriculation examination. If McGill gave similar recognition to Manual Training, perhaps boys would get it in some schools; but the difficulty would be that such a requirement could not become operative for 3 or 4 years because school courses would have to be changed, and school authorities would object to the additional expenditure; at the same time the requirement would have a very strong tendency towards giving the University what it needs. A man cannot become a Mechanical Engineer without a knowledge of tools; he now has to learn that here. It could have been done better before boys come here.

Shop Work Given to Students.

Students get shop practice, but not under commercial conditions; our shop work is intended to give them what they cannot get outside—to enable them to understand principles. After the Manual Training course, students carry out graduated exercises to give them an elementary training in handicraft, so that when they go into shops in summer they can save time and drudgery. In the 3rd and 4th year students get the experimental side of shop practice, viz.: learning, by actually doing the work, the effect of changes in tool hardness, cutting speeds, etc. This is really laboratory work, and very valuable, but just what they do not get in a machine shop. Then they do time-work, making notes of time taken and how to shorten it, and thus make an economic study of shop work. They also get talks on particular features of the work in hand. They are assigned a definite course of reading, and have to pass on all three—shop and written work and assigned reading. Such a course has much educational value.

Need of Shop Experience.

The Cincinnati system would not do as much as our system unless work were carried on in shop under close supervision of competent instructors; because experience under commercial conditions will not be so valuable unless the boy has to mix with men and carry on work under the routine and discipline of the shop. One reason for insisting on shop experience is that they learn the point of view of men with whom they have to work, and for whom they will have to plan work. The results of taking students to visit outside shops is not always as beneficial as might be, owing to the difficulty of handling a large number in a strange place. The proper way is to map out the visit beforehand and appoint guides for special parts; otherwise the boys do not take in anything; they are unable to do so without a good deal of shop experience. We are trying to do the equivalent of the Cincinnati work in a slightly different way. In the Angus shops of the C.P.R., men spend a year or more in manual work. All our graduates would not be capable of guiding workmen as to their improvement, but some would.

Evening Class Work.

Most of the evening class students are apprentices, taking 2 to 5 nights a week. The average lad does not get much good from evening class after a day of 10 hours' work. Evening work for apprentices should be abolished; employers should organize their own schools and let apprentices attend in the Company's time. The benefit to Companies in the provision of intelligent men suitable for promotion would be sufficient in the long run to prove the success of the plan. Journeymen should have similar facilities; perhaps they could not have it in the day time, as the loss would be greater to employers. The German Continuation Class system would be best. Our Engineers have no difficulty in obtaining employment.

Needs of Technical Education in Canada.

Technical instruction for engineering or manufacturing industries should provide for the education of (a) boys learning handicrafts or trades, who are intended to become skilled mechanics, or possibly foremen or shop superintendents; (b) boys fitted by education or natural ability to aspire to higher appointments, who hope to be engineers, managers, and persons in charge of large industrial operations.

The large Schools of Applied Science in connection with the Universities in Canada appear to make reasonably adequate provision at present for the needs outlined under (b), and it seems probable that the demand will continue to be fairly well met as the Universities develop with the country. Experience shows the need of a better standard of general education (especially in English) on the part of men entering technical courses in the Universities; also the need of scholarships to assist needy but deserving students, and those who may be able to rise from class (a). Large employers of labor, who benefit by the provision of a supply of young men fitted for ultimate promotion, should be expected to contribute more largely than at present to the upkeep of the large schools of Applied Science referred to.

Suggestions for Training Foremen, Etc.

As regards the needs of class (a) comparatively little appears to have been done in Canada up to the present time. In connection with educational work of this kind, intended primarily to benefit those who will have to earn their living by their own manual skill, the following points suggest themselves: —

(1) The necessary skill in handicraft and in the operation of machine tools which an apprentice must have in order to become a skilled mechanic, can be obtained only by lengthy shop training; and in most trades only a very small portion (if any) of this training can be advantageously given in school workshops. For the machinist's trade, for example, the school workshops have completed their usefulness to the trade apprentice when they have given him instruction in the methods of handling comparatively simple pieces of work with hand and machine tools. His further shop experience, teaching him how to deal with more varied and difficult work, must be obtained in a place where work is

done under commercial conditions, because no school workshop can afford to carry on its operations on the necessary scale. In certain cases, on the other hand, school workshops are advantageous because they enable a student whose regular work in the commercial shop is monotonous or repetitive in character to see operations which he is not likely otherwise to come across. Thus the machine shop of a school could with advantage give instruction to certain machinist apprentices in tool-making. The construction of gauges, jigs, or machine tool fixtures, which they might use in a commercial machine shop, would rarely form part of their regular work there. School workshops can teach elementary handicraft admirably and with great economy of time, but they necessarily fail to reproduce the conditions of a commercial shop where the time-cost of production is one of the most important considerations.

Employers and Unions Should Co-operate.

(2) A demand from employers for skilled mechanics having arisen within the last few years, it seems fair that any scheme of technical instruction should be supported by employers and by managers of large industrial concerns who would be chiefly benefited, and any course of training adopted should be such as to commend itself to industrial leaders of that branch; but employers should themselves be prepared to make some sacrifice, by giving the apprentice or learner at least a portion of the time he needs for self-improvement.

(3) Co-operation and approval of Trades Unions, and the support of workmen as a class, are necessary for the success of any scheme of technical instruction, since students must come from this class of the community, and because the workmen in any shop must assist to a large extent in training the apprentices, not only by imparting information directly, but also by a friendly and sympathetic attitude towards the boys and their work.

(4) Training must include not only shop instruction, but also school instruction in elementary branches of science connected with various trades, in Drawing, and in certain other subjects. The bulk, if not all, of this school instruction should be given during the day-time in hours during which the employer should release the apprentice from work, and the latter should be under works discipline, and should be paid by the employer. Attendance, in my opinion, should be compulsory. Experience has shown that school instruction given in the evening to a youth who has already worked from 8 to 10 hours is very ineffective; in fact only the strongest and most vigorous, physically and mentally, can benefit from such work.

Combined School and Workshop.

(5) The course of combined school and workshop instruction should give opportunities for the student to take a certain limited amount of elementary scientific and general cultural work not necessarily connected with his trade. A promising student would thus be able either to fit himself for a higher technical course, of University grade, or to follow some line of intellectual work or course of reading which would be his "hobby" and recreation.

(6) The school organization, whether connected with the works or other-

wise, should be such as to cultivate the student's interest and pride in his occupation. The highest ideals of workmanship and conduct should be presented; this can only be done if the teaching staff is very carefully chosen, and if close and friendly personal relations exist between teacher and taught.

(7) With very few exceptions the teachers in such technical or industrial school systems should themselves be working at the industries in connection with which they teach. While this is not absolutely necessary in subjects such as chemistry or physics, the arrangement is very advantageous when it can be carried out, because a teacher of the same trade looks at his work from a point of view which at once appeals to the apprentice. For example, a technical drawing class in connection with a large electrical manufactory should be taught by a man completely familiar with the construction of the factory products, so that he may select and use as examples objects dealt with by the students in their daily work.

(8) The course should be so arranged as to produce not only good and well instructed workmen, but also good citizens. It may be here noted that many of the German continuation schools provide instruction for apprentices in the history of their trade, in hygiene, in civic organization and duties, and in physical training. The latter is especially necessary in connection with trades where the work is hard, confining and monotonous.

(9) Technical school work should, as far as possible, be arranged so as to suit the dull and busy seasons of the trade. In this way it will be easier both for the employers and for the workmen to make the necessary sacrifices of their time, without which the course will necessarily be ineffective.

SECTION 6: INFORMATION OBTAINED FROM MISS CARRIE M. DERICK, PROFESSOR OF BOTANY.

Those who go through the course, which runs 6 hours per week, get sufficient to enable them to teach in the schools of the Province. Forms of plant life, methods of nutrition and breathing, evolution of complex forms, etc., are taken up in the 3rd and 4th years; there is an extensive course for advanced students, 8 and 12 hours a week, dealing with plant life and evolution; a course for teachers, laboratory work and excursions, and a summer class with work bearing on Nature Study in schools; also a 4th year course for teachers of Nature Study. Students of Royal Victoria College can take Botany as an optional subject; an Arts Course can be taken without Botany.

Botany as such is not an essential part of general education but in so far as it helps appreciation of other things, it may be considered so. From that point of view everyone should learn Botany; it should be taught in the elementary schools in a very simple form of Nature Study, because it furnishes material eminently fitted to the simple sorts of lessons which arise in the school, and develops powers which need developing; plants are preferable to animals for this. Children should be taught to understand the principles of life as affecting sex, from an elementary point of view, and Botany can teach that as nothing else can; also it is necessary to know some Botany in order to appreciate the great theories of evolution which are based on it.

SESSIONAL PAPER No. 191d

CHAPTER XXXIII: THE ROYAL VICTORIA COLLEGE OF McGILL UNIVERSITY.

SECTION 1: INFORMATION OBTAINED FROM MISS ETHEL HURLBATT, WARDEN.

The Arts Course prepares for teaching, and offers substantially three-fourths of the course considered desirable in preparation for many other women's vocations.

The B. Sc. Course, with possible extensions, goes far to qualify women for specialized work as Chemical Analysts, Health Visitors, Sanitary Inspectors, etc.

By means of work now done in Pure Science, and by the development of work in the Department of Household Science at Macdonald College, McGill is preparing the essentials which will enable women to qualify in the higher study of Home Economics. If the latter is to be pursued as a University subject, it must be based upon a sound knowledge of the sciences upon which it founded, and teachers must be forthcoming able so to teach it. The latter are at present rarely to be found, and must be looked for among Science graduates who shall subsequently devote their attention to the study of Domestic Science.

About 100 students were working for degrees and 50 taking partial courses; some of the latter in teachers' classes. Not many are preparing definitely for professions; most of them take the courses for higher branches of culture. The College has no Department of Domestic Science. The work taken for degrees is practically such as those in Simmons College, Boston, preparing librarians and for higher secretarial work.

Summer Courses in Library Training are offered annually in the Redpath Library of the University.

The general training in language, literature and history helps in various occupations. Some active occupation in vacations might tell on general development, but it is difficult to know just what occupations would bear on the students' courses of study. They get much from activity during the session; what they need to gain from college work is the power of concentration, sticking to things, subjecting themselves to drill; this is the justification for compulsory courses.

A high matriculation standard is kept up here; no student is admitted who has not matriculated and means to take a degree course. The moral effect is very valuable; the College stands for a high type of work, and must use its endowment for that end.

If the special pursuits that enter into women's lives are given place in University training, they should be respected as of equal value and dignity. They should rank with complete studies in higher institutions, as education apart from utilitarian aspects. If they have educational value of a high order, they should

be included with immense advantage to the body politic, but should be taught on the strictest scientific basis.

If the College had enough money and teachers to put Household Science on the same plane as other college studies there would be no objection to having it. The teaching of fragments of cookery would not be college work; but bacteriology and physics and chemistry and finding the value of the oven would be. It takes a while to organize a body of knowledge, because people who have the practical knowledge have not had a sound scientific education. We need people who possess this to apply themselves to giving that knowledge the form for pedagogical uses.

College fees cover one-third of the expenses. The balance comes from endowment.

SECTION 2: INFORMATION OBTAINED FROM MISS SUSAN CAMERON.

Miss Cameron is teacher of English at Royal Victoria College and also at McGill.

The chief defect in all students is bad speech, bad pronunciation and bad grammar. Slovenly, unfinished speech and writing are possibly due to haste, more often to carelessness. Most students have had a High School course. Compositions differ very much; some write better on personal and practical matters, while others prefer more literary or imaginative subjects. During the first year at the University an attempt is made to level these different impulses. Essays have to be written, and also descriptive narratives and records, describing experiences.

In early life all composition must bear on the child's experiences. When taught to read for the sake of reading, children do not miss getting control over language. Children can learn to express ideas up to the limit of their vocabulary quite fairly in four years. While it may be difficult to teach English to children in the ideal way, it is not difficult in itself; the correcting of bad speech is difficult, and needs constant diligence on the part of the teacher. If children's mistakes are corrected in early life, there is no need to do it later.

Teaching English as a subject connects itself with everything else, and it can be taught either by speech or writing. Our effort is to make students use words so that they express exactly what they mean. If grammar were not taught as an abstract subject it would be better; the rules should be constantly applied practically. In the University the aim is to teach English, to teach students to express themselves well, and at the same time to develop a kindly appreciation of the great things of literature.

It would be a very serious mistake to omit English as a subject; it would narrow the student's heritage and starve the imagination, besides limiting the vocabulary through lack of reading. A special course in English in some form or other is necessary; constant writing is needed, either in connection with history, literature or geography. Students are stimulated by reading masterpieces.

This College has little formal training for public speaking. There is a voluntary debating society. Girls sometimes teach lessons, which is a help in that direction. Accuracy or inaccuracy in language reacts on other studies. A student who cannot express an idea clearly, and perhaps cannot carry out orders that are given, would not be an accurate worker. Discrimination in the use of language means clear thinking; therefore, a person who cannot speak clearly is hardly likely to be a clear thinker, while one who has learned to use words with care and to report accurately is probably more efficient in the world of feeling and society.

CHAPTER XXXIV: INQUIRY AT ST. HYACINTHE: A TYPICAL TOWN.

We give the following record, practically in full, of the inquiry at the Commission's sessions in St. Hyacinthe. This is presented as being typical and illustrative of the nature of the inquiry and the testimony submitted at other towns and places. (The Commission's records of its sittings at 100 places in Canada cover over 4000 typewritten foolscap pages.)

Names of Witnesses.

Paul F. Payan, Mayor, and Chairman of the Board of Trustees of the Protestant School.

Samuel Casavant, of Casavant Bros., Pipe Organ Builders.

D. T. Bouchard, Secretary, Canadian Pipe Organ Company.

Charles M. Hill, Branch Manager and Superintendent of Penman's Limited.

Hector Monet, representing the Organized Shoe Workers of St. Hyacinthe.

O. E. Dalaire, Director of the Dairy School.

Elie Bourbeau, Inspector-General and Instructor at the Dairy School.

J. de L. Taché, Director of the Quebec Dairymen's Association.

Monseigneur C. P. Choquette.

The session opened at the City Hall, on Monday February 13, 1911. at 2 p.m., about 40 or 50 people being present. Mr. Dutaud, (translator) read the King's Commission in French, after which the Chairman outlined in English the objects and scope of the inquiry by the Commission, Mr. De Serres repeating the explanation in French.

The first witness examined was Mr. PAUL F. PAYAN, Mayor, and Chairman of the Board of Trustees of the Protestant School.

Mr. Payan stated that he knew a good deal about the industries of the place, a list of which was sent to the Commission. St. Hyacinthe is a very suitable place for other industries not yet established there. One of the latest to be established is the new Organ Factory. Two of the Shoe Factories have been enlarged, to about one-third more than their former capacity. Skilled laborers willing to work can find employment the year round.

The city has not grown a great deal in the last 10 years, because of the fire a few years ago that depopulated the town to the extent of 2,000 and set it back; but it has got back to where it was.

There is no place in the town that gives Technical Education, except the classes of the Council of Arts and Manufactures. There are no schools where young men working at their trades would have a chance to improve themselves in these trades. There are very many boys aged between 12 and 15 in the town. Most boys from 14 to 18 have little clubs of their own, and enjoy their evenings

instead of studying some good knowledge. They go to their little clubs and pass away their evenings in different ways—with cards or something. If there was an attractive school, with a laboratory attached to it, Mr. Payan thought they would take advantage of it. There is no public library; there was one 40 or 50 years ago, but it no longer exists.

If there were evening classes where young men, after they leave school and begin work, had opportunity or encouragement to continue their studies one or two nights a week, probably a good many would attend them. There is no such school at present.

Mr. Payan did not known of any place where the boys had Manual Training. He thought a good many children left school before 14.

Mr. Payan is a partner in the firm of Duclos & Payan, which carries on business in tanning and leather. Of the 150 employees, he did not believe a dozen were skilled. All the men who had learned the tanning trade had learnt it in the business, and the curriers also. Mr. Payan was willing to take on apprentices, but found they would not hire out for more than a week at a time, and left when they were not satisfied, so that there was no way of keeping them. He did not know of any classes that would help his workers to be more efficient, except more general education which would teach them to read, write, figure and think. Information about leather and hides would be helpful to them. Some employees cannot mix things according to any proportion, because they cannot figure enough. The tannery does not attract as good a class of labor as it might if it was clean work; the men have to work among wet and dirty hides.

A few of the employees had taken correspondence courses. The millwright in the shop worked with his father and took a correspondence course with the Scranton School as a draughtsman.

The boys have to leave the Protestant school here before 14, because it is only a primary school. There was a Model School when they had more children, but there are now only about 15 children. The boys leave at about 14 and go to Montreal to finish their education, unless they go to a Catholic College. There is no Manual Training in the school, and no sewing for the girls. This is the only school they can go to, and Mr. Payan thought it probable that Protestant people were kept from working in this town because there was no good school. Some foremen of factories had come enquiring about schools, and would not come unless there were good schools for their children; so that Protestant families with children are not attracted.

The total sum of taxes of the Protestant School Board is so small that they cannot afford to have a very good school. The Board gets a percentage of the taxes from the incorporated companies on the head of population, but there are very few properties belonging to Protestants in the town. Mr. Payan thought $75,000 would probably cover the assessment that they had to draw taxes from. The Protestant Board only got its proportion from the corporations such as the Grand Trunk, the South Eastern, Ames, Holden & Co., and Penman's. Under the municipal law the owner of the property, not the tenant, determines where the taxes go. Property belonging to a Protestant contributes towards the maintenance of the Protestant school; Catholic property contributes to Catholic schools,

and there is a neutral panel, composed of the property of all corporations such as railway companies, and the taxes paid by these neutral panels are divided up according to the population. The rate on the $75,000 of property is 50 cents on the $100, so that $375 is all that comes in for the school. The Board gets any fees monthly that it can, but some are so poor that it is impossible. To those that can pay, the Board charges 50 cents, and sometimes $1 a month.

The Government grant is divided according to population, and Mr. Payan thought they got $10 or $12 last year. He did not think they had $400 altogether for teacher's salary and maintenance of the school; in fact they are so poor that they have not got a school building, but use the basement of a church, which is nice and airy and makes a very good room. For some pupils no charge is made, others pay 50 cents, or 75 cents, and at the end of the year, if not paid, the Board has to pay the deficit.

They have a teacher with a diploma from the Normal School. When Mr. Bowman was here he wanted some of his children to be educated, so he helped the Commissioners, and they got two teachers, one with Model School diploma and the other as assistant; but now the Board cannot afford more than one, as there are so few children.

SAMUEL CASAVANT, representing Casavant Brothers, Pipe Organ Builders, examined, said:—

Our business has been established 31 years, starting with one man and now employing 140, having gradually increased all that time. Both of us are practical men. Our instruments are sold all over Canada, and some in the United States. The Customs duty is 45% on instruments going to the States, and our prices are somewhat above those of the American trade. This indicates that the quality of our organs is as good as those we compete with. We go over there and set them up. Of course the U.S. is not our field; still we get orders for large organs. At present we have an order for the Jewish Temple in Chicago for $20,000.

Of our 140 men, I should say 75% have learned a skilled trade. We need work more skilled than cabinet-making, even in our woodwork. The men who make the lead pipes are all specialists. We have trained every one of those men. It takes 3 or 4 years before they can know their special branches, but we have to start at the very beginning with good cabinet-makers, the best we can find, and then they are trained through their specialties.

We always have a dozen apprentices or so. We have not enough apprentices to keep up our supply of skilled men. We have to deal with ordinary cabinet-makers, and we train them in one or two specialties according to our means. All our men are trained in Canada, except that we happen to have two strangers; it just happened that those two men asked for work, and we got them. Of course there is always room for improvement.

At present we have the School of the Council of Arts and Manufacturers, on the same footing as at Montreal and other places. This is limited to teaching elementary drawing. They practically only copy plans. Of course this keeps

them in knowledge of drawing and how to read plans, but as regards the theory it is about reduced to the minimum.

Classes for technical tuition would surely do some good provided it is given in such a way that the boys are induced to go. We have to a certain extent trouble to keep up the minimum attendance. It goes all right in the fall when the course is opened; but now the men having families to attend and only the nights to do their small work, miss the school work, and sometimes we are obliged to close the class. I am not prepared to suggest what difference might be made in the course so as to attract those people to stay, but I am speaking more in a general way. Youngsters like amusement, and they have to deprive themselves of that if they go to school. About half a dozen of our men take correspondence courses.

I do not think it would be practicable to allow our apprentices to go to a technical day school 2 or 3 half days a week, because they would have to lose their salaries unless some special arrangements were made with them, and this would of course be a drawback. If there was a really practical technical school I for one would be very much in favor of helping the boys to go, and not cut their salaries entirely in any case, and possibly might pay them the whole of the salary if they were in earnest and seriously wanted to go. I would be strongly in favor of such a thing and would be disposed to assist all I could. I would surely allow a couple of hours twice a week, without cutting their wages at all. As to three half days, that is a matter that would have to be studied. As our business grows larger, it will be very important for us to have skilled and reliable men.

I am a member of the Council of Arts and Manufactures. For painting and freehand drawing, the majority of students are women and girls, with a certain number of young men. For architecture and mechanics the majority are men, working for wages in the day time, also boys about 18. We have about 20 pupils in architectural drawing and 15 in mechanical drawing. We had a class of between 10 and 15 in carpentery for a certain number of weeks, but we had to close it for lack of pupils. We have a little shop and tools, and we supplied the pupils with wood, and they were making miniature doors and that kind of thing.

About one-third of the whole class of men are taking lessons in design. It is now more linear drawing, and some of them will make plans of houses, but it is more to render them familiar with drawing; but we have several of them making drawings of organ pieces. We only have a couple of men in the shop who ornament the pipes. That work is done with stencils. We copy those designs; we hardly originate anything ourselves. The purchasers always leave that to our judgment. The colors of the organ are governed by those of the church.

Our ability to secure orders depends mostly on the quality and tone and general excellence of the products.

In the past 15 years there have been many improvements made in the building of pipe organs; 20 years ago what we call the pneumatic organs were hardly known in this country. We started to work and practically transformed organ building as it was heretofore known in this country. Besides that we have introduced different improvements such as adjustable combinations, and that sort of thing. The organs of today include many shades in tone as compared with those manufactured 20 years ago. We have both followed old makers and originated in-

provements ourselves. As regards mechanical appliances we have originated part of them; in tone structure we are governed by foreign organs, chiefly by England, which to our mind is the best country to be followed in organ building, as it agrees best with our tastes and temperaments here. We have no difficulty in finding all material to suit our purposes. The reeds we get mostly from the States.

An elementary course in music would not be of any value to our tuners. All our large organs are operated by electricity. We don't find difficulty in getting men to look after the wiring. We have trained all our men ourselves; in fact our shop is a technical school.

A knowledge of various woods, as well as of sound, contraction of materials, effect of climate on organs, would be very valuable to our men. It would surely do good to have schooling in those matters, for a man never knows too much. If a technical school were established here to train men in those things it would do good.

We do not necessarily restrict our cabinet-makers to one special sort of work; in fact we are obliged to teach them different branches in this way:—We take a good cabinet-maker and teach him one of the easy specialities, and then from that one he will jump into another one, and so on. Sometimes a man will have to be specialized two or three times. We start with a good cabinet-maker. The apprentices we take at the very beginning, and they go through different courses. The cabinet-maker has the advantage of having his hands formed, and he can make a good job of any mitre or joint, whereas the boys have to work 2 or 3 years before they get the proper skill.

Teaching boys in elementary schools to use tools, making their own drawings as a beginning, would give them a chance to do handwork in different shops, for boys will work with a machine 2 or 3 years and sometimes never get a chance for handwork at the bench. Handwork is what we taught in our school of carpentery, but the carpenters dropped off in attendance because they are employed all day, and when night comes they want to rest, or they have some other little duties to attend to.

The carpenters here work 10 hours. I could hardly say whether men working 10 or 8 hours a day would be most fit to take education at night. I have seen men working only 8 hours who spent the other two hours just about nothing; it would be an advantage if they were working.

D. T. BOUCHARD, Secretary, Canadian Pipe Organ Co., examined, said;—

We have been doing business about 7 months. I agree with what Mr. Casavant said about the need of skilled and reliable men. I think it is a trade that needs well trained men if we could find them. If any opportunity were provided for such training I think our company would be friendly to giving apprentices a chance to spend so many hours a week to learn their trade, because we make more money with people that understand it well.

It would also help us very much if we had public libraries with technical books, even if we could not have technical schools, because such books are very

expensive for us, as we have to import them from the U. S. or England, and the men generally don't know English enough to learn from them. We have found when we have one of those men that has taken a correspondence course he is very much better than the others. It is only the elements the men could learn in technical classes, and if we had technical books in a public library I am sure they would have the benefit.

It is a very hard thing to say why the public library here was closed. There was a mutual society that had a kind of a library; it was not public; and when the club went down the books went to the National Society. I don't know why the Society shut up the library. The book cases are here, at the disposal of any man that would give the books. I hope we will have a Carnegie Library here.

CHARLES M. HILL, Branch Manager and Supt. of Penman's, Ltd., examined, said:—

We employ between 500 and 600 hands; from 60 to 65% are women. The factories here turn out knitted underwear and hosiery, flannel blankets, men's underwear and felts. We sell our output entirely in Canada, from Coast to Coast. We keep about 25 skilled mechanics for the repairing of the property.

We have no real apprentices; we have a few young fellows, but we don't bind them down for a number of years. We keep men coming forward; we start them at a low wage and teach them. I believe some are taking correspondence courses. If night classes were formed some of them would attend.

We have skilled men in every department, more or less. The weavers at the looms are not skilled, but the boss weavers are. We have no classes for those people, but there are places like the Lowell School, Leeds College, Boston Technical School, etc., that teach those things. They produce the foremen and the best men. A very large percentage of our men could take advantage of such classes.

Those textile schools are usually in places where there are several factories. If a foreman in a mill becomes a teacher a school like that could be started in a small way, and it would be very helpful here. We have some men in some branches that would be competent as night school teachers.

Men in England serve four years' apprenticeship in wool sorting, and then become journeymen; that is a trade in itself; so with the carding, etc. A general man to take charge of a mill is the most difficult man to get, because they usually go into some one branch and stick to that.

I served my apprenticeship in most of the branches we cover, in the mills. I took lessons in textile designing from a practical man who was also good with the theory, and I bought books and studied. I never got a chance to go to one of those textile institutes, because I was working all the time. If I had gone to those schools it would undoubtedly have been of great assistance in my present work. We have no such classes in Canada in the textile business where any instruction is given.

I think a certain percentage of our workers would be willing to go to night classes for two nights a week; but for one thing, their knowledge of English is not sufficient in some cases, and the lessons in those American schools are chiefly in English, and on that account they find it difficult to acquire knowledge.

We have not very many children working in our place. According to the Government requirement they have to be 14 years of age, and able to read and write; we examine them on those subjects. Not very many are found that are not qualified to enter our employment that way. There is not a factory inspector here.

We do not use much dye here in comparison with some textile mills, because our business is chiefly knitting, in which the color is a small per cent. We employ an expert dyer. He is an old man who has been about 30 years in this mill, and I think his knowledge is mostly self-acquired; I don't think he has had technical training. Of course we would prefer a man who had technical training in the first instance, but not entirely, for we prefer a man who has had both the technical and practical. It is very easy to spoil a lot of goods in dyeing. I don't know any place in Canada where practical instruction is given in the art of dyeing. When a Montreal or Toronto house wants an expert dyer they will send a man down to New York so that he can get a certain amount of training in the laboratories down there, which are generally in connection with houses where they sell the dyestuffs. I know that many American schools teach chemistry in connection with dyeing. I know practically all the textile factories in Canada. There are some Canadians and some of all kinds among the dyers, but the chief ones I know are Scotch. Some have gone to schools in large textile centres where dyeing is taught, either in day schools or night classes.

I suppose it would be possible with our large system, to have some instructors, if the manufactures were willing. In the knitting trade particularly the need for instruction is not felt so much as in the weaving business. This is the only mill in our Company's hands that has both knitting and weaving, so in this plant we feel the need of skilled men, more than we do in any other plant.

HECTOR MONET, representing the organized shoe workers of Ste. Hyacinthe, examined, said:—

All the declarations I have to make are contained in this memorandum which I submit to the Commission. It represents the views of our organization as to Technical Education, and its advantages or disadvantages to us.

I have worked at the trade over 14 years. I got no outside instruction. I believe if we had received technical instruction we would have been in a position to fulfil our duty in a better way. I believe many of our workers would attend night schools if formed, because such instruction was requested by the officers of the Shoemakers' Union.

The kind of school kept by the Council of Arts and Manufactures here does not concern us. What we require here would be one giving special instruction in shoemaking. We could very will benefit by instruction in mechanics regarding

the machinery used in our trade. Cutting also would be of some advantage to us in connection with pattern-making for shoemaking. There are classes for freehand and mechanical drawing in the school here. The latter would serve as a beginning of knowledge for cutters, but it would not be of any use in connection with pattern-making. I don't know any of our workmen who attend these night schools. What we would like is to have night schools which at the same time would teach reading and writing.

We say that there are several cases of child labor here, but I don't know whether they are of the legal age to work in industries or not. At least people say they are not. In this memo. we are asking that children be compelled to go to school till the age of 14.

MEMORANDUM FROM THE BOOT AND SHOE WORKERS' UNION. STE. HYACINTHE. (Branch of the American Union.) *Translation.*

The Bootmakers' Union of Ste. Hyacinthe in reply to the request for suggestions as to the best means of promoting and developing technical and industrial education among the working classes, begs to submit the following:—

We beg the Government and Municipalities to establish in industrial centres, public libraries for the general instruction of the people; and further, that a part of the said libraries be specially devoted to literature of direct use to the workman.

In the less populous centres, where it would be too expensive to open a library, we consider that an annual grant should be given by the Public Authorities to properly organized Workmen's Clubs, which would enable the latter to provide themselves with the publications relating to their own trades and to keep themselves posted in the latest scientific developments.

We consider that more courses should be given in the evening schools, especially in the School of Arts maintained by the Provincial Government; that substantial prizes should be awarded to successful students in these courses, preferably in the form of scholarships to enable the children of workmen in rural districts to attend the large technical schools in the cities.

The Public Authorities should publish a Journal for Working Men, on the lines of the Journal of Agriculture, distributed free by the Provincial Government, giving all information on the industries followed in the country.

Lecturers should be provided to Workmen's Clubs, on the same lines as they are now sent to agriculturists, to give addresses, in addition to purely technical subjects, on law, hygiene and accounting.

As working men cannot afford to have their wages further reduced, we beg that laws be enacted to protect the fathers of families against the illegitimate competition of women's and children's labor.

We demand that education should be compulsory up to the age of 14 years, and that books be provided free.

Mr. O. E. DALAIRE, examined (in French) said:—

I am director of the Dairy School at St. Hyacinthe, and have occupied that office 4 years. No fees are charged to those who come to the School. The Provincial Government owns the property and meets all expenses. We give courses of instruction to butter makers and cheese makers; no others. We offer 4 or 5 courses each winter. The course lasts a month or 5 weeks. This Dairy School has been giving those short courses about 15 or 17 years. We don't offer courses to farmers' daughters for home dairying now; we offer courses only in what concerns butter and cheese making.

This winter we will have between 300 and 350 who take courses. Those men mostly all go back into cheese factories in this Province. We give them instruction in the testing of milk as well as making butter and cheese.

The inspectors of creameries and cheese factories come for instruction about every third year; there are 74 of them. A man cannot be employed as an inspector unless he has a diploma from the Dairy School. He might be an inspector for the Government, but it is understood that when all our butter and cheese factories are under syndicates those inspectors themselves will become inspectors of syndicates.

There is no law obliging the butter and cheese makers to enter into syndicate. There are about 2,800 butter and cheese factories in the Province of Quebec.

The farmers and cheese makers themselves value and appreciate the services of this Dairy School. If it was shut up 5 years I think it would be a very bad thing, for no country in the world can stop education for a while. There is still need for its continuance, to keep up our reputation and product.

The School costs the Government $8,000 or $9,000 per year. The value of the output of cheese and butter from the 2,800 factories in Quebec Province is about $12,000,000; so the cost of the School would be less than one-tenth of one per cent on the value of the cheese and butter. The spending of that $9,000 has been the means of increasing the money from the cheese factories and creameries.

Agriculture generally has been improved by dairying, because the farmers have kept more cattle and had more manure to enrich the soil. We expect to carry on dairying in every part of Quebec, as it is well adapted generally to our products. The going away of young people from Quebec is much less now than it was.

I hope that syndicate inspectors may soon be engaged by the Government; they are now paid about half their wages by the cheese or butter makers, and the other half by the Government, so they are not quite independent. We generally think that because of this they are not entirely clear of suspicion that they might favor certain cheese makers.

Some of our instructors visit dairy farms and give instruction when they think it is necessary to do so, and that is appreciated by the farmers, and often asked for. It is not sufficiently done now; it is now owing to the lack of money for the purpose; they go when asked for.

I have been interested in cheese and butter industries 17 or 18 years. The best butter and cheese of Quebec Province, as shown by the market price, is cer-

tainly now equal in value to the butter and cheese of Ontario. I would say the cheese made wherever those 74 inspectors go. I suppose Ontario was for some years in advance as to quality, as shown by the market price; at least they said so; I was not sure; I know from what the paper said; of course I could not say whether that was actually so or not. I know that in many cases Quebec cheese was passed off as Ontario cheese, and Ontario cheese as Quebec cheese; and when it was good cheese it was generally passed off as Ontario cheese.

There is no reason now why our good cheese should be passed off as Ontario cheese, because since that time people have so looked after matters that we are now the masters of the situation. I am not ready to admit that our product was at any time inferior to theirs.

MR. ELIE BOURBEAU, Inspector-general and Instructor at the Dairy School, examined, said:—

I have been inspector since 1893; for 12 years before that I was making cheese. The Government pays the whole of my salary. In winter I superintend the instruction at the Dairy School. In summer I oversee those inspectors.

I have oversight of all the inspectors that do inspecting of cheese factories. They are employed by the factory men of the Province, who pay half of the fee, the other half being paid by the Provincial Government.

Their main duty at first was to detect fraud rather than anything else, but the last 10 years they gave more of their time to educating the makers than to detecting wrong milk. They spend their time now chiefly in inspecting. While they are called inspectors, they are really travelling instructors. I think the name should be instructors rather than inspectors; that would be a better definition of their duty.

Taking the cheese that used to come up the St. Lawrence River on the river boats and cheese that was sold on the wharf from the Lake St. John region and away down there, 17 years ago, I think there was at least ½ cent per lb. difference in its selling price compared with the finest cheese from Quebec. We sold as low as 6½ cents in the summer time. Last year the Provincial Government formed a Co-operative Society, and I have charge of grading the cheese, and I took some of the factories from every part of Quebec, and I showed some of the worst sections, e.g. Lotbinière and Rimouski and Chicoutimi, and the price that we got this year was a little over Brockville prices. I think the Brockville market is more even than any other in Ontario, because the other markets are smaller. When a buyer does not want cheese but wants to boom the market, he will go to the smaller market. I claim that Brockville makes a good even quality, and it is a very large market. This year we got beaten 5 times; we beat them 11 times; other times we were even, and so we are a little ahead of Brockville. As inspector I have to be a good judge of cheese.

Taking the quality of cheese at those factories where instruction is given compared with the quality 17 years ago, there is so great a difference to a man who knows the cheese business that we might say there is no comparison. In

those places I have spoken of they made the cheap kind, but now they are making the finest quality. There is no doubt there has been a decided improvement in the quality. That has also helped to establish the reputation of Quebec on the English market, for I went to England in 1900, and again this year, and we saw some Quebec cheese that was equal to any cheese I saw there. There is not so much variation between the different factories now as there used to be, though there is still some on account of some small factories being behind. When the cheese makers come twice to the School there is not much variation. I don't believe the cheese of Quebec could have held its own at all if there had not been some place to give the makers instruction. I believe they would have been out of business long before if they had not had the inspectors and the Dairy School; whereas now the value of the trade is about twelve millions a year.

The farmers get a good deal more for their milk now than they did 15 years ago. I had a cheese factory in a parish a few miles from here and used to receive 3,500 pounds of milk a day; but when I left, with only 5% more patrons, I used to receive 12,500 pounds a day. The difference was due to the increase in quantity from each cow; they had about the same number of cows. They now grow more green fodder, and lots of silos have been built the last few years. They grow Indian corn of the early ripening sorts that make good ensilage. Not much alfalfa is grown in Quebec, because it has not been much of a success so far.

If the Government had contented itself with merely publishing bulletins and sending around lecturers to talk about the theory of making cheese, it would not have been as good as sending travelling instructors to the factories; and the supplementing of that by a Dairy School was also necessary.

I think the farmers could get as much good in their business in producing crops, by having competent travelling instructors visit them, as the cheese makers get. The prosperity of Quebec could be immensely increased if farmers could grow bigger and better crops. Such work has been done already to a great extent by agricultural lecturers, but it could still be improved. Before the Dairy School was started and before the travelling instructors were appointed there were a good many lectures delivered in Quebec, but they would not have done as much as the instruction of competent men who go and stay with men in their factories. The same thing would apply to farming to a certain extent. We had a lecturer that came along to the orchards to give information about the trees, and that was worth a great deal more than lectures.

J. de la BROQUERIE TACHE, examined, said he was the first Secretary of the Quebec Dairymen's Association from 1882 to 1891. Then he became a Director, and was such when the first Dairy School was built here. Much progress had been made in the quality of the cheese since then.

As Secretary, he came in contact with Mr. D. M. McPherson, who at that time owned a number of factories on the north and south shores of the St. Lawrence River. At that time he had taken the top prices for the Province with his product, and Mr. Taché found that he had had instruction from cheesemakers who

visited his factories. In 1890 Mr. Taché put before the Board the importance of starting a similar system of instruction in the Province for cheese factories. Up to that time they had had very poor results from their Association, because some people who joined turned out very poor inspectors. At first the inspection was summer inspection, but only on the call of the factories, the inspectors simply going where they were asked. Mr. Taché suggested the importance of a system whereby the factories would pay half the expense, and that was started with a grant from the Government.

In the draft of the rules of the Association, the object of which was the training of inspectors, the idea was embodied of starting a Dairy School; 40 of the members formed a guarantee fund, and the Government gave a grant of $2,000 for 10 years. The Ottawa Government provided through Prof. Robertson, with the cash at his disposal, to take care of the deficit in the Dairy School. The Association practically left the Dairy School to the control of a committee of 3 members, one appointed by the Federal Government (Prof. Robertson), one by the Provincial Government (Mr. Chapais) and one by the Association (Mr. Taché).

They were surprised when, instead of having few pupils, they had an average of about 250, which average has been kept up ever since.

There are now 75 syndicates. The first year there were 10, and the number has been increasing ever since. The Dairy School, which was a technical school, was founded with the idea of not receiving green hands at all, but cheesemakers. It is a trade and technical school.

Quebec did not suffer any damage and there was no interference with the control for Quebec and by Quebec people when the Dominion Government granted money at that time. Until 1893 sometimes they gave occasional grants; but the Dairy School proper had never been helped more than to the extent of $4,000 or $5,000 at the most for the first 12 or 13 years. "Prof. Robertson always did his best for us, and never interfered with the work, and the success was such that when we asked the Provincial Government to help us carry on the school, they said, 'We will take charge of it now'". Mr. Taché said that at the time he was very much opposed to handing it over to the Government, but he could not say now that he was sorry this had been done, because the work is still going on.

This important industry in Quebec decidedly could not have been developed as it has been, or could not have held its own against competition, without trade training or technical education. Similar means would have similar results here in manufacturing and in industries. That sort of education has not in any way interfered with the general education of the children of the Province.

In connection with the Dairy School they had always made it a point—and Mr. Taché had always striven for that point—that the teaching should be confined to the very line in which these men were earning their living. He was opposed to giving agricultural courses at the Dairy School, because he knew that the men attending there had enough to do in their own line without grafting agriculture on to it. Probably 95% of the cheesemakers are not agriculturists themselves, and are not in a position to appreciate what would be given them in agricultural education.

Mr. Taché thought that courses in the same line as those in the dairy school—short winter courses—given at convenient centres, would be equally useful to the farmers as applied to their own occupation. A large number of people are in agriculture who are absolutely devoid of means of culture, and no doubt an efficient school is very much better than any reading a man can do for himself. In addition to those short courses for farmers, there is need for and would be advantage from travelling instructors visiting chosen farms, in the same way as those inspectors visit the cheese factories. Mr. Taché's idea was that those short courses would be given practically by instructors who would give practical illustrations, and those would be carrying on that sort of work in the winter first in centres, and then in summer time on the farms themselves. Mr. Taché thought that would be indeed a good thing to have done in the Province.

Mr. Taché, being recalled near the close of the session, said:—Following the discussions, and the information that was submitted before this Board, I think it my duty to submit to you a schedule which happens to be in my hands, indicating the distribution of the 460 pupils of Girouard Academie, a municipal institution of our city. The course of this Academie is spread over 8 years. The 460 pupils of 1910-11 are apportioned as follows between the different classes: pupils of the first year, 150; second, 98; third, 88; fourth, 79; fifth, 33; sixth, 21; seventh, 7; eighth, 4. I must add that the Brother Director, when I applied to him for the distribution of pupils, told me that one most not conclude from the above that all the pupils give up schooling in proportion to the numbers of such schedule, because a certain number of pupils enter the Seminary at St. Hyacinthe in order to follow classical education, or enter the Commercial College belonging to the same order. At the same time he regrets very much to observe that notwithstanding all the efforts to keep pupils at school for a greater number of years, parents do not seem to sufficiently appreciate the importance and reasons which ought to induce them to leave their children at school. The Brother Director told me he believes that the great inducement of earning money offered to the children is perhaps the principal reason which causes them to be withdrawn from school before having remained there sufficiently long to complete the course of study. This would lead me to think that a certain number of children, notwithstanding the declarations of the manufacturers, enter the factories and various industries before attaining the age of 14, in the same way that they enter the employ of different classes of people.

Regarding libraries, I think that everyone is agreed that a technical library placed at the disposal of our workingmen in the different trades would certainly be useful and desirable. The only danger the Catholic population sees in it is that very often these libraries comprise subjects absolutely outside special lines attributed to them.

MONSEIGNEUR C. P. CHOQUETTE, examined (in French) said he had been in St. Hyacinthe 41 years, and had seen many industries follow each other here. In his opinion it is important to the people that the young people should have

opportunity of being trained industrially and with technical knowledge. The question of how young men past 14, who have left school, should be induced to spend some evenings in the week in training is really an old question that pre-occupies nearly every great teacher. Mr. Taché is in a position to give you statistics showing that our children attend school till 10, 11 and 12, but they don't afterwards follow the classes in institutions such as academies or model schools.

As to institutions of what may be called superior education, or intermediate or secondary education, specially adapted for those who are to follow the industries, such as are provided for those who are to follow commerce or the professions, he did not know any except the one in Montreal that Mr. De Serres is looking after, or that kept by the Council of Arts and Manufactures, specially connected with Manual Training.

It would be an excellent thing, if possible, to have schools, similar to those for commerce, with an equal part of the time given to work with the hands, tools and materials, to qualify those who are to engage in industries. Then a young man who has followed even the commercial course, would look a little higher towards technical work, and would take pleasure in work of that kind; but he would require larger wages than are paid at present for a man of his qualifications.

It will require large wages to hold young men who have that higher technical education, and Mgr. Choquette feared there would be no situations for them in this country. He believed the Commission ought to find a method of giving more importance to technicians. It is unfortunate in our country that pupils leaving technical schools are not rated at their value. He believed it would be the Commission's principal function to obtain for such instruction the recognition which belongs to it. That would be a great benefit. Take for example the dyeing industry, or where chemistry plays an important role. In such industries only pupils from Universities or technical schools are admitted. In the leather industry it is the same thing; experts are required. Frequently we have men well disposed, but without qualification, who have no practice. In regard to dairying, the inspectors ought to be able to appreciate the quality of the water. Here again technical training is not sufficiently reckoned with. To sum up he would say, "Open careers for young technicians and you will have technicians, and pupils in technical schools." He thought that such young men who have missed opportunities quite young would go to evening classes when they realized that they are missing many things. When aged only 12, 13 or 14 they do not think of anything more than play.

If boys, going to school until they are 14, had a good deal of Manual Training and handling of tools and materials and making drawings during the last 2 years, he believed that would help to indicate occupations they could go into, and make them enjoy them. He would consider that a pleasure to himself. Some of the so-called classical colleges in this Province have tried that. He knew of at least two that had a working shop close to the college, and the students were allowed on holidays to work there; but he noticed they were closed, and deserted. He did did not know why.

Mgr. Choquette did not know whether there would be any difference in the love of a boy for taking tools and materials in his school years between 12 and 14 and 16 and 18. If it were a question of directing him to some career or some

way of working, if taken at 12 or 14 years he would have a chance to change his mind.

He thought it advisable that craftsmen should have a technical education of the lesser degree that would help them considerably. For instance, a plumber should know the elements of hygiene and sanitation; a carpenter should know the strength of materials that he uses. In the United States engineers were turned out in great numbers when electricity became popular, and those engineers at first obtained big salaries; but to-day they are so numerous that they have dropped to the level of minor employees. Apart from the salary, of course, there was satisfaction, another aim of education.

He wished that it were possible to start here an institution that would give night classes for instruction in science and art—painting is there already—not for the purpose of training technicians but for the purpose of developing taste and intelligence.

Schools or classes where there was more hand work, more tool work, would surely induce boys to seek more education who now never go into secondary or superior schools at all. To help those who are going into industries to become skilled craftsmen would be greatly desirable if possible, and he thought this might come little by little; it would be a kind of tradition, and they would like it. The trouble now is to bring boys to evening schools. If there was something that would catch their attention, such as some courses of applied chemistry that might be mixed up with some other subjects, he thought they would come.

Memorandum from the Chamber of Commerce of Ste. Hyacinthe, Que.

Translation.

(Submitted by Mr. Bergeron.)

The Council notes with regret that the industrial and commercial firms of the city of St. Hyacinthe find it almost impossible to obtain among the young people leaving our schools, academies and colleges, any who have sufficient practical knowledge of affairs to make good employees, or who, after a reasonable length of service, are able to go into business for themselves. The best of them have their heads full of confused ideas which they are unable to apply in practical life, and very few of them can even write passably well the most ordinary business letters.

This Council is of the opinion that this state of affairs is due to the fact that the instruction is not sufficiently practical, and that memory is too much developed at the expense of individual reasoning. One of the principal causes of this deficiency is the lack of practical knowledge on the part of the male and female teachers of the Province. The majority of our teachers of both sexes are most worthy people, inspired with the desire to do good, but, by reason of their condition or social position, they know nothing of practical affairs, and have no personal experience of the problems confronting a young man when left to himself.

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The Council of this Chamber of Commerce thinks that it would be advantageous to procure for the higher classes, by means of adequate salaries, men who have been accustomed to practical life. In order to secure competent teachers, the Government should fix a minimum salary and insist upon a reliable certificate of efficiency. This Council also considers that the Government should reduce the expense of primary education, either by arranging for uniform books, by distributing them free of charge, or by printing the books themselves and selling them at cost price.

Attendance at school should be compulsory up to the age of 14. This would materially improve the quality of our workmen, among whom there are unfortunately far too many who can scarcely read or write, and who can never aspire to become leaders of industry.

This Council would be very pleased to see the Government and municipalities establish free Higher Commercial and Technical Schools in populous centres, under the direction of experts, at which the sons of business men, workmen and agriculturists could obtain practical instruction which would put them on an equal footing with the young men of the most progressive countries.

This Council also notes with regret that those of our young people who wish to study the subjects relating to their occupation are unable to do so in the absence of a free public library at which they can obtain practical books to help them. This Council expresses the hope that our government and municipalities will establish as soon as possible, public libraries containing technical books.

CHAPTER XXXV: STATEMENT ON BEHALF OF THE SHERBROOKE BOARD OF TRADE.

One of the most serious aspects of the educational question as seen by us, is that of first securing the attendance of the children at our elementary schools. To an extent which is a menace to the character and ability of our future citizens there is a marked disinclination on the part of parents to send their children to school beyond the most elementary stages, while there is an appreciable number who are indifferent to the educational training of their children altogether. In our opinion this is to some extent due to the defectiveness of our school law, which does not provide for the compulsory attendance of the children of school age, although it does enact that the monthly school fee "is exigible for each child from seven to fourteen years of age, whether he attends school or not; unless exempted in virtue of article 249 of this act". (See Sec. 13, Art 247 of the Educational Act). The article furthermore provides that no child from seven to fourteen years of age shall be excluded from school for non-payment of monthly fees. The child admitted under this condition, however, would, under the terms of Art. 249, be practically admitted as a pauper scholar, and as such would be placed under a disability in his relations to the other scholars.

(1) We would suggest that the most practicable way to remove the existing conditions is to make education free and compulsory in the Elementary and Model grades, and that, if feasible, it should be extended to the Academy grades. We believe that the educational facilities and advantages offered by the schools of our province should be equal at least to the best that are in existence, and that the resources for such schools ought to be commensurable with the demand for them. A wider recognition on the part of the Government and the municipality of this demand would awaken a sense of responsibility for the creation of a compulsory school system.

One of the results of the imperfect preparation for their life's work is that when the boys are apprenticed it is found by the foremen that many of them are incapable of working the comparatively simple problems in arithmetic as required by their trades.

(2) We would respectfully suggest that the text-books used in our schools should be uniform, and that they should be changed only when the new books are decidedly superior to those already in use. There have been complaints from parents in the past, because of the frequency of the changes; while dealers have asserted that they run a risk of financial loss by overstocking in text-books that are liable to be changed before the next school-year. It has been asserted, with what degree of truth we are unable to ascertain, that the changes are sometimes due not so much to the superior character of the new books as to the influence that the authors and publishers can exert in the proper quarters. We would recommend that books used in our schools be selected for their merit only, and

that only after a comparison with the very best text-books used in other provinces or countries.

In this connection we would urge the advisability of inaugurating a series of Inter-Provincial text-books, so that scholars who go from one province to another shall not find themselves at a disadvantage, as they so often do under the present system, when beginning their work in the schools of the province to which they go. Moreover, such a system would facilitate in a large measure the work of students who are preparing for careers in government schools, Military or Naval.

In respect to the uniformity of text-books we would point out that there ought to be no insuperable difficulty here. What has been found beneficial in the Western Provinces of Canada ought to commend itself to the judgment of the educational authorities of this Province and by careful discrimination be effected by them.

(3) We believe also that the time has come for the School Boards of our municipalities to supply all books and school supplies to the pupils free of charge. While this may present itself as a very radical recommendation we would remind your honorable body that where free text-books are supplied the results have been very beneficial. We have already referred to the disinclination of some parents to provide an adequate educational training for their children. While this may be due in part to the indifference of the parents to the advantages accruing from such training, it is also due to some extent to the fact that the cost of books and supplies is frequently a serious burden for those whose incomes are very small relatively, and acts as a deterrent in continuing their children at school. Especially is this the case where the family is large.

Should it not be deemed advisable to provide free text-books and supplies, we would suggest, as an alternative to the present system of purchase by the scholar from the dealer, that the School Board in the municipality or district supply all the necessaries to the children at cost price, thus eliminating the middleman's profit, which would mean a material lessening of the expenses in this particular where several children are in attendance at school from one family.

Another advantage to be secured from the adoption of such a system would be the supply of books without delay to the scholars. Under the present system scholars are frequently placed under a disadvantage in beginning the school year, because an adequate supply of books has not been ordered by the dealers. These excuse the shortage on the ground that they want to avoid overstocking.

(4) We believe that the establishment of Manual Training and Domestic Science classes in all schools where the attendance is large enough to warrant undertaking this work should be seriously considered. Through such classes the interest of the scholars in the other departments of their work would be maintained. It is unnecessary for us to point out the advantages derived from this feature of modern educational methods, but we would lay emphasis upon the fact that not only does the system of Manual Training promote manual dexterity, but serves to retain the scholars for a longer time in the school to receive the necessary training for their life's work.

Speaking for one of the richest agricultural districts, of which this city is the centre, we would suggest the establishment of schools for the teaching of agri-

culture in the rural districts, within a certain radius and population. By the establishment of such schools we believe that the interests of the sons of farmers would centre far more in the farm and that the large exodus from the country to the city would be considerably lessened. We would suggest that such schools should be under the joint administration of commissioners from both panels, since there should be nothing in those schools over which difference of opinion in religious matters ought to exist.

(5) It is the opinion of the members constituting this Board that our schools should provide a more thorough training in penmanship. The defect in this particular is very marked at present. Every teacher should be required to pass an exacting examination in penmanship before being granted a diploma to teach, for, excepting in schools where a specialist is engaged to teach this important subject, the scholar is dependent for his instruction upon the qualification of the teacher. The demand for good penmanship is insistent in the case of those who are looking forward to a business career and must be met.

(6) One of the most serious aspects of the educational question as it appears to us to-day is the lamentably small number of men who are teaching in our schools. In this city, with four schools under the Protestant Commissioners we have only one man, who is principal of the High School. In this particular we are probably no worse off than are many other towns with the same Protestant population. But this fact does not afford us much consolation. We believe that it is necessary in the interests of the boys, and ultimately in the interests of the community, of which they form part, and whose future will be largely in their hands, that more men should be induced to enter the teaching profession. We believe that the best interests of boys would be served if they were entirely under the supervision of masters, after they are twelve or thirteen years of age. They need more masculine influence over them, providing, of course, that it is of the right kind, both in the schoolroom and playground. The boys are practically left altogether to themselves on the playground. It is there they often need instruction in and exemplification of the principles of honor and fair play, and such would be authoritative coming from a master. The Canadian boy is in danger of losing the true ideal of sport because he is too often obsessed of the idea that the necessary and all-important end in playing a game is to win. This danger might be averted by proper training on the playground. To sum up this particular aspect of the question: we believe that there exists a need for organized play in our school system.

(7) The question of inducing more men to go into the teaching profession resolves itself largely into a question of providing adequate salaries for them. But it is even a wider question than this. Not only must we face the question of higher salaries for men, but also for women. The present standard for this province can be characterized only as disgracefully low. Unless it is very materially raised we cannot expect to maintain schools that shall meet the requirements of the age. We wonder that so many enter the profession, both men and women, and that the standard of excellency among them is so high. They deserve better treatment at the hands of those of us who have sufficient confidence in them to leave our children under their training and influence twenty-five hours a week, for forty weeks in the year.

(8) We believe that the time has come for the general establishment of a system of compulsory medical examination, especially with reference to the eye, ear, nose throat and teeth, for all scholars attending our public schools. Observation makes this necessity very evident. In all schools of any considerable number of scholars, there is always a percentage who are suffering from some physical defect, of which sometimes their parents are unaware, and the teachers are unable to do anything in the matter, should they notice the condition of the defective children. In New York, and other places where this system is in practice, and where schools are specially provided for "defectives", the benefits to those handicapped children have proved immeasurable. Moreover, such medical inspection would to a large extent avert the epidemics that frequently invade our schools, through the lack of proper safeguards in the interests of all the scholars.

(9) In this connection we would also suggest, as far as possible, the general introduction of some form of calisthenics. In the large schools there should be a gymnasium provided under the direction of a competent instructor. Where such equipment is not feasible, as in the small schools, simple exercises of one of the many excellent systems now in vogue might be given under the direction of the teacher. Such exercises, we are convinced, would do much towards maintaining the physical efficiency of the scholars.

(10) We would suggest in connection with our elementary school system the opening of night classes for those who are above school age and who are engaged in some form of employment during the day. The need of those classes is felt by those who have not received a sufficiently thorough elementary education among our own young people, and also by the immigrants who not only need instruction in the elements of education, but especially in the English language, where they are of foreign birth.

(11) Coming now to matters that are of specific local importance, we would draw your attention to the need of a separate and adequate building for the higher grades of our Protestant schools. Our Academy or High School work is carried on in a building which has beneath its roof every grade from the kindergarten to the A. A. Classes, and the Principal of this school has to divide his time between all the departments. We believe that better efficiency in this department could be secured by giving it the distinction of a separate building and staff. It is a very regrettable fact that a large portion of our scholars who might easily continue their schooling cut it short of the higher grades. If the High School were properly housed and supplied with teachers who could give all of their time to its work, it would doubtless appeal to a larger number of the scholars. At all events we ought to have a High School here that would attract a large number of students from the surrounding country.

(12) Finally, we need a thoroughly equipped Technical School here. We are the centre of a population of abont 200,000. Within a radius of relatively a few miles we have various mining industries, while in the city our manufacturing interests are increasing and developing to an extent sufficient to warrant the opening of a school in which our young men could receive a thorough training in mechanics and allied snbjects. The classes under the Council of Arts and Manufactures have done good work for many years, and are still pursuing their course

with gratifying results. But the time has come when there should be a more adequate attempt to meet the needs of our city, and surrounding country, and we believe this can be done most effectively by establishing a school for technical education.

Funds for the support of public schools in the City are raised as follows:

	Protestant Panel	Catholic Panel
Taxes	$15,350 00	$16,000 00
School Fees	2,972 00	1,700 00
Government Grant	543 00	1,050 00
	$18,865 00	$18,750 00

The foregoing report applies particularly to the Protestant Panel, although it is entirely acceptable to the Catholic Panel, with two possible exceptions, namely: Compulsory Education and the Uniformity of Text-Books. But several Catholic members of the Board have expressed themselves in favour of compulsory and free education.

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CHAPTER XXXVI: MEMORANDUM FROM THE MAYOR OF VICTORIAVILLE, QUE.

In small manufacturing towns where many men are employed, and where a large number of girls wish to work but cannot find employment it has been suggested that companies should be formed to develop the ready-made clothing industry and thus furnish work to these girls.

We find a sufficient number of girls for the secondary work, but have great difficulty in finding highclass men for the difficult work. We are thus compelled to train these employees at great expense, or else to seek them elsewhere, and even so, we have great difficulties to contend with, as this industry is partly controlled by the Jews; consequently this industry becomes concentrated in the large cities, to the detriment of our smaller towns. However, if our Government would give us a technical school at which tailors who have already served a certain apprenticeship could learn special branches of their trade (for there are two distinct sides to this industry, the practical tailoring and the ready-made), this would be a great help. In one or both branches of this trade we are behind our neighbours in the United States, who have the advantage of the technical schools, at which the theory and practice of tailoring are taught, as well as making up, which latter is our chief lack in the ready-made trade.

The Government would render a great service to Canada, and particularly to the Province of Quebec (since this industry tends to develop chiefly in the small towns of our Province) by establishing one or more of these schools where young tailors could perfect themselves in the art of tailoring, and especially in making up garments.

CHAPTER XXXVII: TRAINING FOR THREE SPECIAL INDUSTRIES.

SECTION 1: THE CANADA PAINT COMPANY, LIMITED, MONTREAL.

Mr. Robert Munro, President and Managing Director, writes:—

Our business, which is the largest of its kind in Canada, is devoted to the following industries.

1st. *The Manufacture of Mineral Pigments.* For this purpose our plant at Redmill, Que., uses bog iron ore (surface and sub-surface) which is made into Reds, Browns, Purple Browns and Purples for all descriptions of outside painting, especially for roofs and freight cars. We also mine, in New Brunswick, Graphitic Shale and manufacture it into Graphite Paint for bridge and other iron structures. In the same Province we are also mining Sulphate of Barium, (commonly called Barytes) which is used as a base in our Chemical Color Department and also for cheaper paints.

2nd. *The Manufacture of Chemical Colors* from the essential chemicals which are imported free. These represent Chrome Yellows, Greens of all kinds, also imitation Vermilions, and Red Lakes. These are developed in great variety, mainly for industrial paints.

3rd. *The manufacture of Varnishes, Japans and Dryers.*

4th. *The preparation of Linseed Oil from Flaxseed.*

5th. *The preparation of White Lead, White Zinc and other Paints.*

The foregoing are supplied to the general painting trade for household use, but more especially for use in the industrial arts, especially by such companies as manufacture agricultural implements, carriages, pianos, furniture, wagons, etc.

A large proportion of these paints are sold in liquid form (ready for use) and it may be interesting to the Commission to know that the greater portion of paints manufactured and sold in Canada is of a high class. The intelligence of the people contributes to this as they generally understand that the best are the most profitable. Legislation in this regard is more advanced in Canada than in any other country, inasmuch as we have a clause added to our Adulteration Act forbidding the marking of White Lead as "Pure" unless it is absolutely so. The British people have endeavored to secure this through their Trade Marks Act and have had a measure of success, but the result of this legislation in Canada is that over 80% of all the White Lead sold is absolutely pure.

The manufacture of *Paris Green for the potato bug* and tree spraying is quite an important item of our manufacture. The Dominion calls for about three hundred tons of this necessary product per annum, the expense to the agricultural community being about $120,000 per annum.

The chemical section of the evening technical classes is appreciated by our employees and will be increasingly taken advantage of.

SECTION 2: THE C.P.R. SYSTEM OF TRAINING APPRENTICES.

The Canadian Pacific Railway Company inaugurated at their Angus shops, Montreal, a system of training apprentices. This includes a course of theoretical instruction in a class connected with the works. The training is progressive, starting first with general educational instruction for the young employees, then advancing to shop and technical instruction, and finally to educational facilities for journeymen which enables them to qualify for minor positions on the staff.

There is no night work in connection with this course, the classes being held during the Company's time, and apprentices being paid as if at work in the shops.

For two or three years the Company ran evening classes for their journeymen, but this work was eventually taken over by the Council of Arts and Manufactures.

The primary education for young employees consists of (1) Reading and Writing; (2) Elementary Arithmetic; (3) Geography of the C.P.R. system; (4) Biographical Sketches of past and present eminent Canadians; (5) Freehand Drawing; (6) Punctuality and Regularity; (7) Thoroughness, Application and Self-reliance; (8) Cleanliness and Thrift; (9) Recreation.

The young employee, after he has received the above training, is put through courses of instruction in shop arithmetic, shop mechanics, shop practice and mechanical drawing, which enables him upon completion of his apprenticeship to qualify as a skilled mechanic. Then, if necessary, he may take advantage of the advanced classes in mechanics, electricity, locomotive and car construction, and workshop practice.

The young clerks in the general and other offices at Montreal have equal opportunities with the apprentices in the shops for equipping themselves for their life-work. Schools of Telegraphy and Shorthand have been in operation for some time, and the advantages they offer are being eagerly seized by a number of ambitious youths.

The Company also provides instruction cars with competent men in charge to give instruction in the mechanism, operation and care of the Westinghouse Air-Brake, steam heating and safety appliances. One of these cars is employed on Western lines and another on Eastern lines.

Information from Mr. Lacey Johnston, Assistant Superintendent of Motor Power.

In the Angus shops there are a good many departments, and a regular course of instruction through which the apprentices are put. It has really become a department, and was in charge of a graduate of Cambridge University. For 250 apprentices, he has under him 3 technical and 7 practical shop instructors, the

latter having been taken from the shops—expert men that have shown themselves by their daily work not only expert but able to instruct boys in the work they have to do. The salaries of these instructors are paid entirely by the Company.

Before the boys enter the works as apprentices they must pass an examination on Canadian Geography, Railway Systems, Arithmetic. The applicants take the examination in French or English, according to their nationality. On passing, they fill in a form, and when a vacancy occurs in the shop the boy wishes to join, he gets Mr. Johnston's approval, and is sent to the shop.

When a boy becomes an apprentice, if French he gets class instruction in English, to enable him to mix and converse with the men and boys in the shop. After a French-speaking boy gets away from Montreal or Quebec it is as necessary for him to know English as to know his trade. English boys brought up in Montreal as a rule understand a little French, because they have mixed with French boys at school. If a boy has been brought up in English, he chooses whether he will learn French or not. Thus there is enough French, and there is no need to teach it. In the car department probably 75% are French. English is taught to the French boy because he is to work in an English-speaking country. He is being taught for the whole system, and would be at a disadvantage if he did not know English.

After a boy has been accepted as an apprentice, instructors working about in the shops with the boys take hold of them and teach them the proper way to handle their tools and set up a machine, how to fix it, and the best way to handle work when it is in the machine, etc. There are instructors in all the different departments to teach the boys, independent of foremen and workmen. These men have nothing to do but instruct the apprentices in their group; they are practical mechanics, chosen because of their fitness for the position.

The boys serve from 4 to 5 years as apprentices, and their whole course of instruction and work is planned out for them from the day they enter. The shop instructors have a regular schedule by which the boy is moved from one department to another. After he has been in such a place for 3 months, he is moved to another place, so as to give him a general understanding of the work.

In addition to all this shop work, the apprentices get a little elementary education which enables them to become general mechanics. The aim is not to make either steam or electrical engineers of them, but rather to make them good intelligent mechanics. To this end the schedules show when they are to be moved from one place to another, and the man in charge is held responsible for seeing that the boys are moved from schedule to schedule. Human nature is the same all the world over, and the tendency is that if a man gets a boy who shows himself very apt on certain work, to keep him at it to the boy's disadvantage, but the Supervisor steps in and says, "Here, that boy is due to move to such and such a place", and he has to go. The shop instructor is under the Supervisor of Apprentices.

All boys have also to spend two hours a week in the instruction room, and there is a schedule drawn up for that. Boys go in certain groups and on certain days, as not more than 20 are taken at a time.

The shop instructors do not leave the shops, but there are instructors in the drafting room for the purely technical side of it. In the last 6 or 8 months a little change has been made, so that instead of taking them in the technical work they are taken in the practical work too; they have a hammer, chisel, and vise there, so that when they go into the shops they are not altogether green on it. If a little shop work were taken in our schools, it would relieve the instructors of this. The boys in the High School who are taught Sloyd work, are able when they come here to go ahead with hammer and chisel, and thus save all the time in this work for more advanced work. Consequently they go more easily through that advanced work. These boys would be very apt to get a scholarship under the Company's system, because they are advanced beyond the other boys. So far very few boys have come into the shops who have gone through the Manual Training schools in Montreal.

In the instruction room the 3rd, 4th and 5th year boys are grouped under different grades of instruction to suit their different years. Boys have an opportunity of passing an examination at the end of every year so as to pass from one grade to another.

The 6 boys who pass the best during the year get scholarships. Those boys who are practically out of their time, but are backward and not able to take the advanced course, get scholarships after their time to keep them in this class and bring them up to the boys who have had better advantages. In addition to that, the directors of the Company give two scholarships at McGill for some of their workmen.

Until this apprenticeship system was established, the Company used to get a very poor class of boys, simply taking them because they were the sons of workmen, or something of that kind. When Mr. Johnston came here, he found a class of undersized, weakly little boys that could not do a day's work under any consideration. Then there were a lot of boys who were thrown in there by their parents to get rid of them and earn some money. Now the boys are picked, and there are plenty on the waiting list, so that they are getting a different style of boy altogether; consequently they will get a different stamp of mechanic. The work the boys are doing in the shop can be traced accurately, which heretofore was never attempted; consequently it is known that the Company gets compensation for the work of the apprentices.

The advantages of this system are found to be very great when the apprentices become journeymen. Of course a large proportion of them always go away to other shops, and some go out of the machine work. Even if they are not filling railway positions they are filling positions that railway men would have to fill, and it is no loss to the Company. The Company rather likes them to go out and get experience in other shops and come back. In nine cases out of ten they return and bring back special ideas for the shop. The Company looks upon it as a winning proposition all around.

Boys are not indentured, but there is an agreement signed by the parent and the boy, undertaking to abide by the rules.

The journeymen do not need more than they have now the opportunity of getting. For two or three years classes were run for them, but this work has been

taken over by the Council of Arts and Manufactures, and the Company advised its men to attend their evening classes. Some of the men have won medals in these classes. There are several men holding positions on the road who went through McGill University, and they are useful for carrying out tests, etc.

The Civil Engineers do not come under Mr. Johnston's department at all; that is an entirely different branch.

Large numbers of McGill students come there during the vacation for practical work. They are put into the shops and paid like ordinary workers. All who come can be accommodated, and they usually put in 2 or 3 months.

The output of the shop is better because of this system of instruction, because the shop work is done more intelligently. Other manufacturing concerns, in Mr. Johnston's opinion, would get the same benefit from such a scheme, and it would be a decided advantage if it became general all over the country. The smaller manufacturers could not do it, but if there were schools in the neighborhood that their men could attend, it could be managed. Some men and boys are not very keen to go to evening school, but the more ambitious ones would avail themselves of it. If they went in the employer's time, some time would be lost in getting to and from the school, and if 100 apprentices from 6 factories were to attend, this loss would be appreciable. If it were taken once a week, time would be saved, and that would be satisfactory. The smaller concerns would thus be put on an equality with larger ones, and probably many boys would attend.

Mr. Johnston stated that they had to keep quite a strict discipline on their boys. He was willing to be quoted that the training of the apprentices is a proper and profitable piece of business management. He was prepared to stand by that.

Order of Talks on Shop Work for Apprentices in the Toolmaking, Brassfinishing, Steamfitting and Machinist Trade.

I. The use of hammer and chisel and the reading of the shop scale.
II. The use of centre-punches, scribers, dividers, inside and outside callipers, squares and straightedges.
III. The handling of all classes of wrenches and spanners.
IV. The use of level, plumb-bob and surface gauge.
V. Description of the Drilling Machine and the manner of setting up work on the machine.
VI. Rose-bitting, reaming and counter-sinking.
VII. Handling of taps, stocks and dies.
VIII. Classification and use of files.
IX. The use of scrapers and hack-saw.
X. Description of the Shaping Machine Shaper Tools and method of setting up work in the machine.
XI. Description of the Slotting Machine, Slotting Tools and method of setting up work in the machine.
XII. Description of Planing Machine, Planing Tools, and method of setting up work on the machine.

XIII. Description of the Milling Machine, Milling Tools, and method of setting up work on the machine.
XIV. Description of the Lathe, Lathe Tools and method of setting up work on the machine.
XV. Description of the Grinding Machine and its uses.
XVI. The reading of Micrometers and Vernier Callipers.
XVII. Laying-out of work on the marking-off table.

SECTION 3: DOMINION BRIDGE COMPANY'S CLASSES FOR APPRENTICES.

This Company established night classes for their employees. The first year the courses were structural drawing, mechanical drawing, and arithmetic, but the two latter were discontinued as they did not prove popular among the men. The structural drawing was a complete success in regard to the number of pupils and results obtained.

Mr. H. J. Griswald, the Assistant Superintendent, explained that the establishment of the classes was a purely commercial proposition from the Bridge Company's point of view, as were all schools carried on by Corporations. They were running the night school because they needed the skilled men; and the man who could demonstrate in the school that he could "deliver the goods" was promoted by the Company. The most important positions in the shops were the most difficult to fill.

Young Men Benefit by Classes.

The bulk of the young men were eager to take up the classes, said Mr. Griswald, not so much with a view to changing their position, but to improve in the one they occupied. The classes lasted from 7.30 till 9 o'clock, the full course being divided into two terms of ten weeks each. The men were charged a fee of $2.50, which was returned in full if they attended 80% of the classes and made fair progress. Out of a total of 47 students in 1911, only two forfeited their fees. An increase in wages was practically assured to those who made progress, 15 of the students in 1910 having been advanced in both wages and position until they had ceased to be helpers and were themselves in charge of men before the summer months were out.

In addition to structural drawing, Mr. Griswald thought that physics and geometry would be of most use to the men, and he was hoping to extend the classes to include these. There was a great deal of heavy hoisting in connection with the work of the Company, and although men of long experience rarely made a mistake in judging the size of chain to use on a certain piece of material, yet they seemed unable to impart this knowledge to the younger men. He realised that accidents would occur with less frequency if the men had some knowledge of the fundamentals of physics.

CHAPTER XXXVIII: SUMMARY OF OTHER TESTIMONY AS TO INDUSTRIES.

Much of the testimony submitted to the Commission, although voluminous in quantity, may be summarized by omitting repetitions, reiteration and elaboration. Under a few chief headings, therefore, a mass of evidence is grouped in the form of a narrative, the exact expressions of witnesses being reproduced as far as possible.

The groups are headed as follows:—(1) Industries and Workers (including Foremen); (2) Apprentices; (3) Kinds of schools called for. Some of these topics are treated elsewhere also, especially that of Apprentices.

SECTION 1: INDUSTRIES AND WORKERS (INCLUDING FOREMEN).

It may be said that manufacturers generally heartily support Technical Education in any and every form, many of them expressing willingness to have apprentices trained in shop time. There is a loud and general demand for workers of greater intelligence and ability to understand orders as well as special skill in the operations of the particular industry. A better class of operatives would increase production. Besides "trained intelligence and quickness of mind make better workmen, and they make more progress and get better wages."

Ability to read blue prints would very much improve many industries, but this is often lacking even in machinists, though they would increase their competency and wages by learning this. Drawing and mechanics would be valuable knowledge for men who take care of machinery.

The testimony is general that skilled and reliable men are difficult to get, and in some lines this difficulty is increasing.

In several industries workmen have to be imported from other countries; this applies more particularly to artistic crafts like lithography, and those involving knowledge of chemistry, such as paper-making. Even in these lines, however, a change is coming, for our technical and art schools are beginning to supply these needs; already the large pulp and paper company at Shawinigan Falls is "training natives on the spot."

Workers should know the reason for things they do; lack of this causes friction between workers and foremen. Canadian operators are being replaced, but if these were well trained they would be good foremen and even manufacturers.

It was urged that women should be put on Boards dealing with technical education, so as to watch the interests of women in industry.

The call for greater skill in industrial work may be summed up in the expression of one witness. "To-day industry needs a host of educated workers familiar with laboratory methods."

In *Textiles, Clothing*, etc., technical instruction would improve the workmen's ability and cause a rise in wages. Operatives in clothing need elementary instruction to inculcate taste, and many would go further and develop this. In spinning, education is the only thing that can develop a girl's ability. Knowledge of how to keep the machine clean would not only afford discipline, but the girl could do more work than others. A cutting school where drafting or pattern-making was taught would be good. Superior training in the different processes of silk, cotton, woollen, linen and jute industries—in fabrication, dyeing, chemicals, etc—would enable young women to fill positions now taken by outsiders. In the cotton industry, evening instruction in chemistry, mathematics, design and drawing would be a great help. In the manufacture of corsets a school of design would help very much. It was stated that there would be advantage to men in this industry to have places like the Lowell Textile School, Leeds College, Boston Technical School etc., which teach industrially.

In *Leather, Boots and Shoes*, etc., lectures on different kinds of leather would be good for apprentices; also practical illustrations of fitting and shaping the shoe upper to fit the sole, showing by the actual skin the good and bad parts, and how the leather goes into the shoe.

Lessons in pattern-making and design, drawing and artistic taste would be a great help. Manual Training in schools would make boys more skilled workmen.

To produce the right leathers, tanners must know chemistry and coloring, as chemical tanning is in vogue now. Tanners would be helped by more ability to read, write, figure and think—especially the latter.

Technical education would improve a worker's ability and increase his earnings. A practical knowledge of leather is needed to avoid mistakes. Cutters have to be skilled to use leather to advantage. The more training a foreman acquires, the better for himself and the concern. In the manufacture of boots and shoes there are a hundred operations, in every one of which the operator has to use brains combined with the machine; hence the better trained he is, the more and better work he will do.

In *Glove-Making*, leather for some lines must be imported from the United States, England or Germany, as Canadian tanners do not supply it. In explanation it was stated that Canadian business is not large enough to afford a market for those special lines. The only form of Technical Education said to be useful to glove makers was on glove cutting, in which department 40% of the men would be benefited by Technical Education. There was much loss on stock by men having only a general knowledge of construction.

In *Rubber Works* employees need Technical Education outside the factory. Apprentices need instruction. One employer said he would reduce apprentices' time in the factory to 5 hours if the other 5 were spent in school. The factory has to get foremen from the United States. One Rubber Company has three college trained chemists for analytic work.

In the *Building trades* there was said to be room for improvement. One witness suggested that men should be graded into classes and paid according to the certificate of the foreman; also that the Technical School should teach the principles underlying all trades.

In *Furniture, Cabinet Making, Carpentering,* a night school to teach drawing would be useful for those who make patterns for bedsteads, etc. A knowledge of cabinet making given in schools would make men better workmen, and save manufacturers' material. Carpenters need technical education for stairs and roofs, and should learn to read plans. In the manufacture of doors, sashes, furniture, etc., men who understood drawings would be worth fifty per cent. more, because they would not waste as much material, and also would be able to work without supervision by reading the plan.

Wood work in the finishing of buildings is now of better quality than 25 years ago, and calls for better trained men and better machinery. Drawing and mathematics would do a lot of good; instruction in the use of the band saw would also help.

In *Terra cotta* works men are mostly skilled, but need chemistry.

Bricklayers need training in straight wall work and art panelling work.

Tile Makers should know chemistry, as they have to burn the material.

In *Organ Building* a knowledge of sound, contraction of materials, effect of climate on organs, etc., would be valuable to the workmen.

In *Pulp and Paper Making,* technical education is favored because men could then be got in Canada who would know how to make paper scientifically and practically, and more men would be capable of taking higher positions. Before entering the factory they should have a knowledge of mechanics and general application of tools, also if possible some Manual Training. This would help the manufacturers very much.

For *Foundries and Machine Shops* men need instruction in geometrical drawing, mathematics, mechanical science, and knowledge of metals. If men could read plans, even though they could not make them, and those plans could be distributed to the workmen, the cost of production would be reduced.

In *Steel Work* all leaders must nowadays be college trained men. They need shop and college education together. Hence many of the McGill engineering students go to the Angus railway shops in summer for practical work.

In *Bridge Work* accidents would be avoided if men understood the fundamental principles of physics. Men with some knowledge of physics would be safer to entrust with the maintenance of bridges. Technical education would improve men in the Bridge Co.; older men are not quick enough. The number of machinists would be considerably increased if they had technical education directly bearing on mechanical work.

In *Railway Work,* mechanics must have technical education along with experience; practice combined with theory; head and hands working together. Locomotive engineers are taught by travelling instructors, road foremen and district mechanics. Men are trained for airbrakes by means of travelling equipment.

In *Aluminum* manufacture, in drawing wire and making cable, men should understand the fundamental principles of mechanics.

Barbers should know the dangers of disease; also should be able to detect skin diseases from appearances, so as not to pass on diseases by their tools.

SECTION 2: APPRENTICES.

The "boy problem", always interesting, especially to parents, becomes pathetic—sometimes even tragic—in view of the lamentable but patent fact that Canadian schools are not holding and training boys during the critical years —14 to 17—and in too many cases not even as long as to 12. The boy's independence causes him to leave school, or his parents (perhaps with a large family) encourage him to turn out and work. He is thus deprived of schooling by pressure on his time for labor to help support the household. Under good conditions the average boy of 14 ought to be sufficiently educated to begin work, but few of them are.

When the boy goes to work the problem changes, and the worry is transferred from teacher and parent to employer. How to train the boy for work, and how to hold him when trained, are questions with which employers in Quebec, as elsewhere, are continually wrestling. The conditions are practically the same in all the Provinces, varied only or chiefly by the character of the elementary education, the opportunities for further education in evening schools and special classes, lack of desire for study, fondness for amusement, the temptations to shift from one factory to another, or to leave regular factory work altogether for outside employment which, though only temporary, pays better for a time.

In the case of girls the problem is perhaps less acute, but it has an added element of pathos in view of the fact that the future mothers of Canada are being deprived of domestic training and mental enrichment through deadening factory processes.

Testimony touching the points noted above is monotonous in its uniformity and repetition. The brief space at disposal may be usefully employed by citing suggestions for improvement.

Employers all prefer boys trained to habits by discipline. If they were taught the importance of details, they would work more conscientiously, and fewer foremen would be needed. Manual Training and drawing in elementary schools would greatly help boys by accustoming them to use tools, enabling them much sooner to learn a line of goods, and to do handwork in different shops. Without such preliminary training, boys now have to work two or three years to acquire the proper skill to make a good job of a mitre or joint.

The Canadian Pacific Railway shops teach boys the proper way to handle tools, to set up machines, to repair them, and to handle work when it is in the machine.

An employer of fine machinists said apprentices should be taught mechanics generally, drafting and geometrical drawing, the latter being the most serviceable of all. A manufacturer of sashes, doors, etc., went further and said that a boy with a little knowledge of geometrical drawing would be a very good workman in six months, instead of requiring two or three years, as now; hence his schooling would enable him to earn more money and to do better work. This employer always gave the preference to boys who had Manual Training. If apprentices to bricklaying were well trained, one witness declared, it would improve the conditions of bricklayers and also of the bosses, as well as that of the apprentices themselves.

Boys need and should have systematic training while working in factories. There should be day and night schools for them. One factory had an instructor from the United States at $15 a day to teach machinists. With three months' teaching boys were worth 10% more. One witness thought that 4 hours a week out of the Company's time is not too much to extend to the boys in their railway shops. It would be better to allow an hour a day, or 5 hours weekly.

A manufacturer of foot-wear declared that it would pay him to reduce the work of apprentices to 5 hours daily if they attended school the other 5, because, as he phrased it, "our success depends on getting good workers."

The part-time system was well thought of, though some witnesses considered that by involving double the number of apprentices it would be difficult to work. It has not been tried to any considerable extent in Quebec.

SECTION 3: KINDS OF SCHOOLS CALLED FOR.

In all the towns and cities visited the Commission found a desire for Evening Classes where they did not exist, and for more technical training where a start had been made in any form, correspondence courses not being considered satisfactory. Teachers are available at once in many places. Some towns have professors and also able architects who could carry on Technical Education. Free rooms are offered in some cases.

It is interesting to note that over 50 years ago Seigneur Jolliette left funds for an Industrial School in the town called by his name.

It is recognized on all sides that a certain amount of elementary education must be obtained so as to prepare pupils to grasp Technical Education, It would be a help to Technical Education in after years to have free, compulsory education. A fear was expressed that a Technical School would not succeed because the standard of common education was not high enough to build on. This statement was challenged and stoutly denied, Technical Education would mean higher branches of arithmetic, mathematics, algebra, elementary chemistry and mechanical drawing. Drawing considered as a higher kind of penmanship would form a good foundation for Technical Education. One witness said: "Our workers most need reading, writing, arithmetic, geometrical drawing, a little mechanical science, chemistry and physics."

There must be correlation between primary and technical education, as the primary schools will have to supply the technical school with scholars. Teaching of drawing should be compulsory as a means of training children to observe closely. "Before going to a technical school solid elementary knowledge must be acquired to prepare for it. Better schools are needed".

Evening Schools were favored, though it is sometimes found difficult to secure attendance. Boys would be better for Night Schools, while older workmen would not object. Some Public School buildings are being used for Night Schools under the authority of the Provincial Secretary. Night Schools are said to be much better than Correspondence Schools. They are chiefly needed as Schools of Design, as employers have to go abroad for designers.

It was predicted that the working people of Quebec city would be enthusiastic over the new Technical School.

Comparatively few young men from 15–18 attend Night School. Those schools should be made attractive, for a boy who goes to a factory at 14 and works all day is very often too tired to attend, having spent all his strength during the day. What a boy goes through as apprentice militates against the Night School. Pupils in an Evening Technical School who work during the day demand theory more than practice in their classes.

The work done in the evening classes under the Council of Arts and Manufactures is everywhere well spoken of. Many students who have gone through those classes have done well. Young men learn to read plans. Cases are known of men making $1.50 a day who had, by diligent study in those classes, worked up into positions worth $1,800 a year. Freehand drawing for a year is insisted on, and does great good. Many firms apply to the Montreal classes for designers. One lady pupil gets $18 a week as draftsman in a factory. The newspaper illustrators were drawn from these classes. The freehand drawing taught at the Monument National compares favorably with anything in the United States.

The ideal plan was a school in which a boy finishes with a good education; then public schools devoted to technical knowledge, in whatever branch the boy has undertaken; next shop work as an apprentice. Such a boy would be splendidly equipped. It would be good thing to have a Technical School for apprentices, provided the matter of their wages could be arranged.

The example of France was referred to, where Manual Training is established in connection with primary education. Manual Training helps those who want a technical course; it would induce a boy to find his own disposition; it trains the hands to obey quickly the impulse of the will. Some boys, while dull at book work, are clever with their hands. Boys from 12 to 15 want to do things; they are constructive. Manual Training sets the boy thinking, and the physical exercise in making things in Manual Training is good for his health. Opinion as to ability cannot be based on what a boy does at College.

Instead of teaching a girl the same drawing as a boy who is going to be a workman, she ought to learn to draw in connection with clothing, cutting, etc.

It is believed that Technical Education has made modern France, Germany, and Great Britain what they are, and some witnesses sadly stated that skilled foreigners hold the best positions in industrial establishments in Canada today.

It was asserted that with more practical education the moral standing of the population could be raised, and better citizenship acquired. There are many openings for those who have technical or commercial education, while the professions are overcrowded.

The need for Technical Education of a higher sort, such as the Polytechnic School and University give, was emphasized. The cost of technical education in one establishment should be shared by other manufacturing concerns.

In Montreal there is a forward movement for Industrial Education. The new Technical School there uses both the French and English languages. The dual system works harmoniously, and both classes wish to help Technical Education. An advocate of the Technical School for 20 years thinks that instead of

one Technical School in Montreal, they should be established in all industrial centres of the Province to suit the industries of each place.

"The two Technical Schools in Montreal are the best things done here," said one witness.

One witness said he could get 50 or 60 children in Valleyfield for a Trade School.

Various other suggestions were made, such as these:—Instructors travelling among various branches of industry would accomplish something. There should be exhibits of industrial art work, also pictures in schools. Co-operation with business men for an exhibition of Canadian Art would lead to interest in Art. The Dominion Government should train its own workers. A Technical School is a question of competent instructors, and the Dominion Government should help it. If a certain sum of national money were given towards Industrial Training for efficiency, a certain part of it could be used for the education and training of teachers as a means of industrial efficiency for the nation, which is a concern of the Dominion Government.

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CHAPTER XXXIX: OKA AGRICULTURAL COLLEGE.

This establishment was affiliated with Laval University in March 1908. It had existed prior to that date, under the name of the School of Agriculture, having been opened in 1893 by the Trappist Fathers of Notre-Dame-du-Lac, at the request, and with the liberal assistance, of the Provincial Government.

Since that date, the work has continued to make progress in training men for the administrative services for rural and agricultural industries. The College was reorganized in 1907, at the request of the Provincial Minister of Agriculture, the religious authorities, and the agricultural missionaries, with the full approval of the Council of Public Instruction. It was decided that the School should retain all that experience had proved to be effective and desirable, whilst adding new improvements and equipment suitable for modern requirements and a more extended course of instruction. These additions were completed in the spring of 1910.

The Course at this College covers 3 years. A preparatory course is provided for pupils whose previous education and knowledge are found to be inadequate. There is also a special course for older pupils who are unable to take the full course. This comprises various short courses, of a practical character and of varying length, according to the subjects taken up.

The College has 1,800 acres of ground, 700 being under cultivation. It offers to its students wide facilities for the practical study of agricultural conditions. Nearly all the varieties of soil found in the Province of Quebec are represented, and cultivated with extremely profitable results, thanks to the economical and intelligent methods of the cultivators. All kinds of vegetables which can be successfully grown in the Province are cultivated to great advantage. Many kinds of cattle are kept on the farm. The strictly agricultural industries are carried on in great variety, together with other rural industries, such as blacksmith's work, harness-making, carpentry, baking, soap-manufacture, etc.

Practical work is given the foremost place in the instruction. Under the direction of the instructors, students learn to do the work themselves in connection with the preparation of the soil, feeding of cattle, fruit-culture, draining, management of machines, gardening, etc. By this means they are able to master the numerous details of supervision, handling and execution connected with farm work, as well as learning to observe, judge and decide for themselves. The farm and lands attached form the professor's principal laboratory.

Whilst giving young men intending to take up agriculture all the vocational instruction required in their business, attention is paid to scientific methods applicable to the cultivation of the soil. The aim is to turn out men who, in addition to the technical details of their business, are sufficiently familiar with science to be able to judge for themselves, in given conditions, of the value of various methods of agriculture or rural economy.

The Library.

The Library of the College contains a collection of Canadian works on agriculture and rural industries, as well as many foreign works on agricultural and scientific matters, biography, travels and popular technical books.

Laboratories.

These are equipped with modern appliances for chemical, physical and other experiments, natural history specimens, examples of vegetable and animal biology, zoology, zootechny, entomology, mineralogy, botany and geology related to agriculture. Apparatus for making experiments with soil and grain, metereological instruments and appliances for rural engineering, a herbarium containing Canadian plants, and a collection of insects, etc., complete the equipment. Mural charts, diagrams, lantern views, and modern appliances are placed at the disposal of the teachers and students.

Entrance Requirements.

Students applying for Scholarships must be British subjects and domiciled in the Province of Quebec. All students must be at least 15 years of age, produce a certificate of good conduct from their priest or last schoolmaster; be strong enough to work about 5 hours a day round the farm or grounds; intend to take up agriculture or a rural industry; undertake to observe the rules of the establishment, and pay all necessary fees. All students, except those exempted according to the regulations, must pass an entrance examination, which covers the program of the Elementary Schools of the Province of Quebec. Students unable to take this examination, but who show promise of success, may be admitted to the preparatory course. Exempt from entrance examination are:—Graduates of Classical colleges affiliated with Laval University, having the bachelor's diploma or equivalent certificate; students of normal schools with the primary certificate, and those who have received diplomas from the Central Board of Catholic Examiners of the Province of Quebec.

The entrance examination is written only, and must not exceed the limits of the program of elementary schools. It comprises the following subjects:—French language, arithmetic, accounting, geography, Canadian history, natural sciences, elementary agriculture, and drawing.

The year is divided into 2 terms, commencing in the first week of September, and concluding in the middle of July, with one month's vacation at Christmas. No other holidays are given, except Sundays and church festivals.

In the preparatory year, the time is divided as follows:—French language, 50 hours; English language, 30 hours; arithmetic, 50; accounting, 30; geography, 30; Canadian history, 20; natural sciences, 30; agriculture, 50; drawing, 20; astronomy, 6. In the second term, drawing receives only 14 hours, and astronomy is omitted. The total number of hours are, in the first term, 316, in the second term, 304.

In the Regular Course, the time is divided as follows:—

1st Year.

1st term.

	HOURS
Large Cultures	20
Fruit Culture	70
Live Stock, Hygiene and Veterinary Science	105
Rural Engineering	20
Botany and Biology	30
Chemistry	25
Physics	25
Meteorology	10
Physics	25
Language and Composition	11
Total	316

2nd term.

	HOURS
Large Cultures	40
Fruit Culture	30
Live Stock, Hygiene and Veterinary Science	60
Apiculture	50
Rural Engineering	20
Agricultural Bookkeeping	20
Botany and Biology	20
Chemistry (organic)	20
Physics	30
Meteorology	5
Language and Composition	9
Total	304

2nd Year.

1st term.

	HOURS
Large Cultures	20
Horticulture and Floriculture	40
Fruit Culture	30
Live Stock	90
Apiculture	25
Rural Engineering	20
Political Economy	20
Entomology	10
Organic, Analytic and Agricultural Chemistry	30
Mineralogy	20
Language and Composition	11
Total	316

2nd term.

	HOURS
Large Cultures	40
Horticulture and Floriculture	15
Fruit Culture	30
Live Stock	75
Aviculture	35
Rural Engineering	50
Rural Economy	20
Bacteriology	10
Agricultural Geology and Geography	20
Language and Composition	9
Total	304

3rd Year.

1st term.

	HOURS
Large Cultures	40
Forestry Culture	20
Live Stock	110
Rural Engineering	45
Rural Legislation—civil law, administrative and municipal law	40
Geology and Geography	30
Bacteriology	20
Language and Composition	11
Total	316

2nd trem.

	HOURS
Large Cultures	60
Live Stock	100
Rural Engineering	35
Rural Legislation	30
Science applied to agricultural industries: food, drink, vegetables; animal products; chemical products	60
Agricultural Geology and Geography	10
Language and Composition	9
Total	304

Manual Work.

In summer, students work 6 hours a day out of doors, in winter, 4 hours. In addition to lessons in classrooms, meetings of agricultural societies held at the Institute several times a year, and experiments in laboratories, students receive a thorough and graduated training through daily work and observations made in

the different departments. Students have to perform in rotation every kind of service in connection with the farm, orchards, live stock, dairy, sugar-making, cider-making, wine-making, etc. They thus learn every detail of agricultural and allied industries, and acquire manual dexterity, intelligence and endurance. Great stress is laid on practical work in awarding diplomas.

Students have the opportunity of studying every phase of rural industries, selecting the branch they wish to take up, among those practised at the College. They can study electric heating, lighting, etc., in the plant at the institution itself and thus acquire a working knowledge of power and heating apparatus. Those who desire it may take up forestry, and study the various kinds of woods.

Short Courses.

The short courses are a special feature, especially intended for adults who are unable to take the regular course. Each is distinct and complete in itself. They are entirely practical, and vary from 2 to 6 weeks, being held at all seasons. No examination is required for admission, but students have to give references, undertake to follow the whole course, and pay all fees in advance.

The following are some of the subjects dealt with:—

Breeding and feeding of stock (2 weeks).

Preparation of the soil for seed and selection of seed-grain; rotation (2 weeks).

Fruit culture (3 weeks).

Aviculture—birds, poultry and their products (6 weeks).

Horticulture (3 weeks).

Apiculture (4 weeks).

A special certificate is awarded to those who are successful in these short courses.

Younger pupils may be admitted to short courses by special arrangement only.

Examinations.

Periodical examinations are held during the course, and a written examination once a month and at the end of term. These are conducted by the authorities of the University, who also award degrees. Oral, written and practical tests are set, the latter being conducted by the heads of the departments concerned. Pupils failing to pass the practical test, even if successful in the theoretical part, are considered as having failed. The same rule applies to students failing in the theory, but passing the practical test.

Students who have received the diploma of Bachelor, may one, two or three years later take the examination for the degree of Doctor of Agricultural Science.

Fees.

Scholarship pupils pay: Registration Fee $1; Laboratories and Library, $5, Deposit for breakages, etc., $10; Laundry, $10; Bed-linen, if furnished, $5.

Ordinary pupils pay $100 a year for board, lodging and instruction, other fees as above; total $131 per annum.

Fees for examinations and diplomas amount to $19 in all.

Students pay their own medical and infirmary expenses.

The authorities announce that it is very desirable that students should come to the College with as complete preparation as possible. They would then be enabled to take up at once the physics, chemistry and natural science applicable to agricultural and rural industries. Every effort is made to simplify this part of the instruction by object-lessons, laboratory work, demonstrations, and exchange of ideas between teachers and students.

The authorities do not overlook the fact that nowadays it is not only agricultural instruction that is required. Commercial, economic and social questions more than ever before enter into the life of the agriculturist, and he has to consider not only the climate and the soil, but markets and transportation. He has not only to select produce which is suited to the soil, but that which sells the best. He has to find new outlets, understand transportation questions and the preservation and storage of foodstuffs. Further, in order to protect his own interests, it is incumbent upon him to understand how individual, isolated forces may become powerful through association, co-operation, clubs, syndicates of all kinds.

The Announcement affirms that such is the work undertaken by the Oka Agricultural College. "Not a student of our best schools, or even of our colleges, but would obtain here, for his own happiness and for the general prosperity of the nation, a suitable and earnest preparation for what is perhaps the most desirable of all careers. The future of the race lies in agriculture. 'Let us be a nation of agriculturists', said Arthur Buis, at the close of one of his most remarkable pamphlets on agricultural propaganda, 'and we shall soon become a nation. The earth contains the supreme resources and power; it is through it that everything is renewed and fructified. Agricultural tastes and agricultural education produce a virile nation'."

SECTION 2: THE WORK OF THE AGRICULTURAL MISSIONARIES.

Information obtained from Mr. J. C. Chapais, Assistant Commissioner for Dairying for Canada.

An Association which merits special mention is that of "The Agricultural Missionaries," organized by the Catholic Bishops of the Ecclesiastical Province of Quebec in the year 1894. It is composed of one or more parish priests, selected in each of the Quebec dioceses by the local bishop to take in hand the interests of agriculture amongst the farmers. They strive to show that idleness, want of method, the habit of drinking strong liquors, and luxury, are among the worst foes of agriculture, and their authorized voice is listened to and is a means of producing wonderful results.

The 6th Report of its operations gives very interesting information regarding the work done by these valiant apostles who preach Agriculture at the same time as the Gospel. No subject in connection with the practice of agriculture is unfam-

iliar to these zealous priests whom the Reverend Bishops of the ecclesiastical Province of Quebec have specially delegated to look after the material and moral interests of the agricultural classes in this province. A study of this Report reveals that the branches studied by these industrious Missionaries in their conventions, and dealt with by them during the last 3 years before meetings of agriculturists at which they were present, comprised the following:—manuring, melon culture, the care of bees, the best fruits to grow on the farm, the Experimental Union of Quebec, the Schools of Agriculture and the Experimental Farms of the Province of Quebec, the breeding of horses, co-operation in agriculture, dairying in all its branches, aviculture, apiculture, horticulture, domestic schools, school gardens—to mention only a few among many others. 770 circles have been visited by the Missionaries or their deputies; and 145, 250 agriculturists were able to benefit by their instruction, the latter being of a very varied character, covering 236 subjects dealt with at lectures.

The same Report shows that the following lecturers, all expert in their respective branches of agricultural industry, were asked to give the Agricultural Missionaries the benefit of their advice at the annual conventions, or to represent them in visiting the agricultural circles:—Messrs. G. A. Gigault, the Rev. Trappist Father Athanase, Brother Liguori, Dr. W. Grignon, O. E. Dalaire, Dr. Dauth, G. Reynaud, J. C. Chapais, G. Dimitriou, J. B. Blanchard, J. D. Leclair, J. N. Lemieux, L. M. Grignon, and others.

The question has often been asked whether French-Canadians know how to appreciate at its full value the devoted work of the Agricultural Missionaries. It is known that the effectual assistance given to agriculture by the Catholic priests in the Dominion of Canada from time immemorial, dating from the days of New France to the present time, is recognized and commended by fellow-citizens of a race and creed different to theirs. Fresh evidence of this appears in the issue of the "Farm and Dairy," published at Peterborough, Ont., which shows how much of the work the agricultural priests is appreciated. The article is entitled "Priests as Agricultural Experts," written by Mr. J. A. Macdonald.

In the eastern parts of Nova Scotia and in Cape Breton, as well as in Prince Edward Island, the Catholic priests take a great interest in agriculture, dairying and stock-raising.

In organizing the system of co-operative dairying in Prince Edward Island in the ten years following 1890, Professor J. W. Robertson would never have met with the marvellous success which he did, if he had not had the advantage of the enthusiastic co-operation of the Catholic priests. He himself frequently admitted this.

I observed ,in the course of my travels in eastern Nova Scotia, that the Catholic priests in many cases filled the rôle of agricultural experts to the people. This is particularly the case in the County of Antigonish, and in almost all the counties of Cape Breton. Before I reached Pictou last week, two Catholic priests, the Rev. Fathers Tompkins and McPherson, of St. Francis Xavier College, gave lectures on agriculture in various parts of the county, on the rotation of crops, the cultivation of turnips, methods of cultivating the soil, etc., and were to speak in several other places.

These reverend abbés are experts in the solution of agricultural problems, and their lectures are very instructive. Instead of the small audiences of Farmers' Institutes in Ontario, organized by the Provincial Government, these priests gather together 150 or more farmers. This large attendance at the beginning of the harvest season is a splendid evidence of the confidence entertained in the good fathers by the farmers of eastern Nova Scotia.

It may be mentioned that in the Provinces referred to above, no organization of Agricultural Missionaries exists, this being peculiar to the Province of Quebec. In view of the fact that efforts due to the individual devotion of a few priests to the temporal welfare of their parishioners are so highly commended by those not sharing the Roman Catholic faith, how much more should the patriotic work inaugurated by our Reverend Bishops in the organization of a band of agricultural Missionaries to ensure the material advancement of the agricultural population, be appreciated? As his late Eminence Cardinal Taschereau said in 1879, in a circular addressed to his clergy, "the welfare of their souls is dependent in a large degree on this material progress."

CHAPTER XL: MACDONALD COLLEGE.

SECTION 1: GENERAL STATEMENT.

Macdonald College, which is incorporated with McGill University, was founded, erected, equipped and endowed by Sir William C. Macdonald for the following among other purposes:

(1) The advancement of education, the carrying on of research work and investigation, and the dissemination of knowledge; all with particular regard to the interests and needs of the rural population;

(2) To provide suitable and effective training for teachers, especially for those whose work will directly affect the education in schools in rural districts.

The College recognizing the importance of education, adequate and suitable for the needs of the rural communities which are the great producing class of the country, works in sympathy with all other educational effort for the development and increase of intelligence, power, ability and skill, and willingness to co-operate for the common good in each locality and in the nation at large. The work is arranged into:—

A School of Agriculture;

A School for Teachers;

A School of Household Science.

Increase of productiveness, improvement of products of the field and the industries of the farm and the town, greater comfort and enjoyment in the home, a better taught school for the children, and a nobler sense of the duties and responsibilities of life,—these are among the advantages which the College assists in providing for Canada.

The College property, situated at Ste. Anne de Bellevue, Que., twenty miles from Montreal, comprises 561 acres, divided into (1) The Campus, (2) Experimental grounds with illustration plots; (3) the Small Cultures Farm for Horticulture and Poultry, and (4) the Live Stock and Grain Farm.

Macdonald College is a College of McGill University, the Principal and some members of the Staff being members of the Macdonald College Committee, which directs the educational policy and internal government of the College, subject to the Governors of McGill. All courses at Macdonald College leading to a degree of McGill are subject to the control and approval of the Governors, while the courses for training teachers for the Protestant schools of Quebec are under the direction of the Teachers' Training Committee and the Protestant Committee of the Council of Public Instruction.

Entrance Requirements.

School of Agriculture (Faculty of Agriculture of McGill).—Candidates must be 18 years of age, of satisfactory moral character and health, must have been

vaccinated, and must have worked for a season on a farm. In addition, candidates for the one and two year courses must be conversant with the English language and elementary mathematics, history and geography.

The course extends over 4 sessions of about 7 months each, and leads to the Degree of Bachelor of Science in Agriculture.

School for Teachers.—Teachers to be trained for the schools under the Protestant Committee of the Council of Public Instruction for Quebec Province are admitted under the conditions prescribed by that body; others under the Macdonald College regulations. Such candidates must be 18 years of age, in good health and of good moral character, and recommended by the Department of Education or School Inspector of the Province where they reside.

School of Household Science.—Candidates (a) for Home-makers' and Short Course must be aged 18, and (b) for Housekeepers' Course, aged 23, with evidence of good health (including vaccination), satisfactory moral character, and ability to read and write English, with proficiency in elementary mathematics.

In case of accommodation not sufficing for all candidates, preference will be given to those from the rural districts of Quebec, the Maritime Provinces and Eastern Ontario.

Living Expenses.

For board and lodging, double room, $4 per week; plus laundry fee $1 per session, (for use of laundry); doctor's fee, $3 per session. All students must deposit $5 caution money on entrance.

Tuition Fees.

School of Agriculture:—Students from the farming community of Quebec Province are admitted free for the first two years; for the third and fourth years at $50 per year. Other Canadians, all years, $50 per year. Students from outside Canada, all years, $100 per year.

Laboratory Fees, 1st and 2nd years, $5 per year;
3rd and 4th years, $15 per year.

Registration Fee for Short Courses, $1 per course.

School for Teachers:—

Residents of Quebec Province, free;
Other residents of Canada, $75 per year;
Students from outside Canada, $100 per year;
Laboratory Fee, $5 per year.

School of Household Science:—

Students from the farming community of Quebec Province, free;
Other residents of Canada, and students from outside Canada, $25 per year.
Laboratory Fees for Homemaker and Housekeeper Courses, $10 per year.
For Short Courses, $5 per year.
Partial and special students (Schools of Agricultural Science) $5 per subject per term of course, and laboratory fee covering cost of material.

Buildings and Equipment.

The buildings are constructed with all modern improvements, a complete system of ventilation being furnished to every room.

The Main Building forms the centre of the group, around it being the residences and laboratories. It contains a Reading Room and Library, Assembly Hall with pipe organ, and accommodation for the School for Teachers, the laboratories and rooms for Nature Study and Manual Training, and the School of Household Science.

The class rooms and laboratories of the latter occupy the end portions of the second and third floors. There are two large kitchens, each with working places for 28 students, for practice work in cookery; a dining room where experience is obtained in serving simple meals and special menus, and in the decoration of the table; a large sewing room for practice in hand and machine sewing; dressmaking and millinery rooms; a laundry for practical work in best methods of washing, cleaning, and ironing; and a house decoration room for the study of the principles and methods of the furnishing and decoration of the home.

The Biology-Bacteriology Building contains the laboratories and equipment for these departments, the dairy and soil laboratories, and four private research laboratories.

The Chemistry-Physics Building is well lighted and ventilated, with all necessary apparatus, and special arrangements for flues to carry off noxious fumes. There is a special laboratory for elementary work in Mechanics in the School of Agriculture, with simple farm appliances; as well as a large workshop with full equipment.

The Agriculture-Horticulture Building is devoted to Home Dairying, Horticulture, Agriculture, Live Stock, Cereal Husbandry and Farm Machinery.

The Poultry Building is thoroughly equipped for instruction in the management of poultry, with sections containing pens of the various breeds, illustrations of the intensive and extensive systems, and an excellent brooder house.

Day School and Students' Residences.

The Day School for the Protestant children of the district, which is a practice and observation school for the School for Teachers, contains a Kindergarten room, four other class-rooms, and a large assembly hall, all suitably equipped. It has a School Garden, containing plots for the children and for the student-teachers, together with illustration plots used in Nature Study and for the instruction in the selection of seed, rotation of crops, the protection of crops from diseases, etc.

The Women's Residence has accommodation for over 200 women, with reception and music rooms, apartments for the Superintendent and Housekeeper, a hospital, rooms for women teachers; large dining room, swimming pool and gymnasium, etc.

The Men's Residence is on the same plan, and contains accommodation for over 175 men, with reception rooms, gymnasium, etc.

Farms, Grounds, Etc.

The Main Farm consists of a farm house, several cottages, barns, stables, etc. The dairy herd supplies milk for the College, and calves are sold to Agricultural Societies.

The Cereal Husbandry Department works for the improvement by selection and breeding of all classes of field crops. Five rotation farms have been laid out for the study of rotation and good seed, and four acres are devoted to illustration work with cereals, where experiments are carried on.

The Horticultural Department, with its laboratories and greenhouses, gives students the opportunity of studying practical horticulture during the winter. The Horticultural Farm covers about 70 acres, 30 acres of which are orchard; 20 are devoted to apples, on which cultural experiments have been made since 1909, with a variety orchard.

SECTION 2: THE COLLEGE IN DIRECT RELATION TO AGRICULTURE.

Dr. F. C. Harrison, Principal, gave the Commission an interesting outline showing the relation of the Federal Government in the United States to the development of agricultural education, and pointed out something of the opportunity and obligation in Canada. The following are the points presented by Dr. Harrison:—

We see in the United States a body of workers of extreme accuracy and keenness, and a scientific superintendence not possessed, in his opinion, by any European country. This impetus to agricultural education came about the year 1862, when Senator Morrill, by what is known as the Morrill Act, got through Congress a grant to each State of 30,000 acres of land for each Senator and Representative in Congress to which each State was entitled under the Census of 1860.

The moneys derived from sale of these lands were to be invested at not less than five per cent., and this interest was to be appropriated by each State to the "endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life". (Sec. 4)

Some of this land was sold, some still remains to them, but the average annual income which individual States receive from those grants of land amounts at present to some $15,000 a year.

Liberal Additional Endowment.

An additional endowment was granted under the second Morrill Act, (1890), which appropriated, out of any money in the Treasury not otherwise appropriated arising from the sales of public lands, " the sum of $15,000 for the year ending

June 30th, 1890, and an annual increase thereafter for ten years by an additional sum of $1,000 over the preceding year, and the annual amount to be paid thereafter to each State and Territory shall be $25,000 to be applied only to instruction in agriculture, the mechanic arts", etc.

By the Nelson amendment (1907) Congress added to the above the sum of $5,000 for the year ending June 30th, 1908, "and an annual increase of the amount of such appropriation thereafter for four years by an additional sum of $5,000 over the preceding year, and the annual sum to be paid thereafter to each State and Territory shall be $50,000, to be applied only for the purposes of the agricultural colleges as defined and limited" (in the Acts of 1862 and 1890).

Thus the State Agricultural Colleges have from the United States Federal Government an income of $50,000 (from the second Morrill Act and the Nelson Amendment) as well as an income of $15,000 from the first Morrill Act passed in 1862, while some of the land granted them is still unsold, and yields an average return of 6% or 8%. This is what the Federal Government did for the Governments of the individual States.

Further Federal Grants.

In addition to all the above, by what is known as the Hatch Act, 1887, the sum of $15,000 annually was given to each State for the purpose of promoting scientific investigation and experimental stations where the various phases of agricultural research might be carried on in each State. That amount was increased by the Adams Act of 1906, so that by the provisions of those two Acts each State experiment station will shortly be receiving from the Federal Government the sum of $45,000 per year.

Disbursements from the United States Treasury for the period from 1888 and 1907 for the experiment stations alone amounted to $11,000,000.

This is what the United States Government has done for the State Governments. Now, what has been done in Canada during this period? We find there were certain experimental farms founded through Mr. (afterwards Sir) John Carling, that at Ottawa being the first, together with certain branch institutions which are not run by the various Provinces in which they are located, but which are run by the Federal Government from Ottawa.

Now, it is impossible for an ordinary director at Ottawa to look after experiments as far west as Agassiz, B. C., and as far east as Nappan, N. S. To look after the various phases and interests of agricultural life requires constant supervision. In each of those experimental farms there is not a complete scientific staff, as there is in the States, but usually just a few men who are interested along one or two phases, and who have not had the education that is now given to graduates from agricultural colleges; yet many of their experiments require a good deal more exact knowledge than we have at the present time.

Provincial Governments Should Control Farms.

If those experimental farms were turned over to the respective Provincial Governments, and a sum given them every year, the people living in those Provinces would get greatly increased benefits from those stations.

Macdonald College has a scientific staff which we think is unsurpassed in Canada. Our men are capable of and willing to do good work, such as requires a great deal of money as well as thought to map out. If we could get the Dominion Government to take the same part as the Federal Government in the United States, our work would very quickly spread over those Provinces, first by getting ourselves better known in Ontario and the West, and also by experiments which would be of direct benefit to the country.

It is true that we have here both French and English. In places in the United States where there are two institutions the money is divided by law; so in this Province it could be divided. We would attempt to serve the English interests in the Province, and we could both work together on many points of common interest.

Ottawa Staff a Reserve Corps.

The corps at the experiment station in Ottawa should be looked upon as the reserve, so that they could throw their scientific weight and knowledge and acumen into some problems that come up year after year—first helping the Province of Ontario, then the Western or Eastern Provinces on the particular problems in which they are engaged, and thus helping the various Provinces to do their work. Thus all could work harmoniously together in the interests of agricultural research and agricultural education.

Another way in which the United States Government helps the various State experiment stations is by allowing them the privilege of free mailing of bulletins, publications and newspapers to the farmers. Our Dominion Government only allows the franking of parliamentary papers from the Provincial Legislatures. If correspondents were allowed to write to the various Provincial institutions without affixing postage stamps a great deal of information could be given to them by that privilege.

COURSES IN SCHOOL OF AGRICULTURE.

(A) *Short Courses of Two Weeks Each.*—These are as practical as possible, and cover Live Stock, Cereal Husbandry, Horticulture and Poultry. They are designed to help practical men, who cannot attend the regular courses, to a better understanding of the methods in different branches of agriculture, and to enable them to carry on their operations and management with greater success and satisfaction. The courses consist of lectures, discussions, illustrations, demonstrations and laboratory practice.

(B) *Two-year Course leading to Diploma.*—This covers Animal Husbandry, Field and Cereal Husbandry, Horticulture, Poultry Husbandry and Home Dairying. It is eminently practical, being intended to meet the needs of farmers' sons who purpose returning to their farms. During the first year the practical subjects such as Animal and Cereal Husbandry, Horticulture and Poultry are emphasized, as it is believed that the valuable but rather indefinite information already possessed by the student can be used from the outset in building up a superstructure of agricultural knowledge, enlarged and strengthened by the in-

troduction of scientific principles gained in the laboratories. In the second year more attention is given to the sciences bearing on agriculture, and the facts on which the principles of agriculture are based, together with a continuation of practical subjects. Drawing, English, History, Manual Training, Mathematics, Physical Training are included with the agricultural subjects.

(C) *Four-year Course leading to Degree of Bachelor of Science in Agriculture.* (*B.S.A.*).—This is a continuation of the two-year course for more advanced knowledge of rural economy, the natural sciences and their application to the conditions, processes and organization of rural life. Four-year Students have to prepare a thesis at the end of the Third Year on some subject of original investigation in their department.

CEREAL HUSBANDRY.

Statement by Mr. Leonard S. Klinck, Professor of Cereal Husbandry at Macdonald College.

In class work here we grow material for the advanced men. For the first two years we obtain material from the plots. The advanced men get special work because of special treatment. In growing material for the advanced work we create certain conditions and get certain results. In research work the content of life is varied by crossing or selection, or by varying the conditions of planting.

In cereal husbandry research work has had results of economic, profit-making value, especially in oats, new varieties having been discovered and old ones improved by the means mentioned in conjunction with soil management and the rotation of crops.

This work is valuable to students, both by what they see and hear, and by what teachers obtain in doing it, because laboratory work adds so much to the interest of lectures, having a direct bearing on the problems which confront the students. This has much greater practical value than merely speaking of the matter without presenting the materials. A student in this way gets much more out of it than a farmer merely reading or hearing of it.

Value of Research Work.

This research work is of great value to the country in the case of all cereals. The best results come from having students present in summer when the crops are growing; such men become "live wires" in this line of work, while those who visit the stations only once in a year or two, and do not spend sufficient time to get acquainted with the actual work done and learn the underlying principles, are not influenced to anything like the same extent as the man who understands his work.

Money spent on experiment work in an agricultural college would be of much greater advantage to a crop-growing Province than if expended where no students are trained; because when a man is brought into contact with students he cannot afford to be lax in his work, and in teaching his subject he gets so

many ideas from wide-awake pupils, who are every year up against problems of vital importance, that if he has the money to do work, he will plan an entirely different line of experiments to meet the demands of the Province, through being in close touch with its conditions. He has also greater opportunities for disseminating the information obtained. He would thus be making research meet the pressing problems of the times.

Federal money where needed, associated with Provincial money, would make an agricultural college more effective as a research station, and if safeguarded, as in the United States, the money would be wisely expended. In the past there has been too much duplication, but this has now been overcome, with the advantage that the work of different stations is much more closely related, results are given greater publicity, and workers in different stations know more of results obtained outside.

Improvement in Corn Culture.

A good beginning has been made with classes to improve the corn crop of Western Ontario, where they are beginning to produce corn that was not produced before. This would revolutionize the fodder crop in Quebec in ten years if the campaign were kept up and worked from both ends; i.e., Ontario should produce a kind of corn that will enable Quebec farmers to grow better fodder, and in that way Technical Education up there would have an influence down here. The only reason for going to Western Ontario was that the farmers of Eastern Ontario and Quebec needed just such corn, and it was a question of bringing producer and consumer together. I have gone there to give special training to the farmers for growing seed for fodder crops for our farmers down here; the seed obtained there is better for forage crop.

There has been much gain to the country as a whole as a result of Technical Education from the use of pure seed as distinguised from mixed strains, and the tendency towards the latter in the wheat growing prairies has been corrected, so that the quantity of reasonably pure seed available is greater now than ever before. A farmer who grows a good quality of Red Fife can now get $1.50 per bushel by the carload, whereas formerly he could hardly get a few cents above market price. That is how the public value that grain, which does not cost the farmer any more to grow, so there is no reason why that method should not be extended over greater areas.

Alfalfa For Quebec Farms.

Alfalfa requires three years to come to full development, and in ordinary farming conditions a man could not depend upon its reaching the third year with as much certainty as other crops; but where conditions can be controlled it is just as certain. A man can learn to grow alfalfa with certainty under ordinary conditions here, and it would be very useful to the farmers of Quebec if it were generally grown. Illustration plots might be necessary to impress upon them the special requirements of the crop, and also to convince them of its success, the latter being the greatest difficulty. One of our plots last year brought 9 tons per acre of cured alfalfa, and none were under 8 tons. The same land in mixed hay

would yield 2¼ tons. For young stock and milch cows alfalfa is far better than ordinary mixed hay; besides, the soil would be more productive after three years of alfalfa, whereas with mixed hay it would be impoverished. Alfalfa is richer in nitrogen, and there is no question that it would greatly increase the value of farms. If ten stations were established, costing $1,000 each, they would be profitable in every way, as farmers would be properly directed.

HORTICULTURE.

Statement by Mr. William S. Blair, Professor of Horticulture at Macdonald College.

The Quebec climate is good for vegetables, and also for apples and small fruits. A vegetable grower is a skilled tradesman; he requires special training, and different from that for horticulture.

Technical education could increase the output of orchards in Quebec; the apple product could be doubled in value.

There are four demonstration orchards, financed by the local Government, this College being associated with that work through the Pomological Society; those station gardens provide information for students here. This work is done in old orchards which are in fruit, and is of value, as many things can be demonstrated there. Demonstration work done outside of a central institution, where more careful and broader-line work is conducted, is important. One of the most important things is to have proper equipment, so that proper training can be given for supervision of the smaller work outside. Such work requires men who have been both scientifically and practically trained; those with practical training only cannot carry on such work.

The short courses at the College are made as practical as possible, and farmers get a good deal that they can put into practice at home. 5 or 6 consecutive lessons in the summer at an apple orchard in connection with the demonstration work would be of great value. Demonstrations could also be given in vegetable growing and in connection with the marketing and business end, which at present is neglected. Apples and potatoes would give the best response for the best practice resulting from technical education.

FARMING AT MACDONALD COLLEGE.

Information obtained from Mr. John Fixter, Farm Superintendent at Macdonald College.

The impression farmers carry away from a visit to an illustration or experimental farm is worth two or three times more than reading bulletins. There is nothing as good in the way of educating people as showing them what they can do on their own farms. Men should go from central stations to help the farmers themselves on their farms; this encourages competition on the part of the neighboring farmers, thus raising the level generally. If the College were associated with alfalfa demonstrations by successfully growing alfalfa on its own farms, more farmers' sons would come to the college; and if the college sent men out for illustration work, they would come more in touch with the people, and the farmers would have more faith in them.

A College Farm That Pays.

The College farm crops are the same as those grown in the Province—cereals, fodder, hay, etc.,—but the following table shows that the crops on this farm were twice as large as those of the balance of the Province of Quebec, and they were also worth more than twice the value, while the land is getting richer under our system. We raise enough manure to enrich the land, and our methods of cultivation make it cleaner. In 4½ years fields have been cleaned which were dirty on taking over the farm; and systematic rotation prevents the fields from getting dirty again.

We keep account of every hour's work, and pay for everything. The accounts show profit on the individual crops, so that the farm pays. The average farmer who follows our instruction can double the product of his farm without increasing the labor account disproportionately. There is no reason why the same methods cannot be applied to the whole Province.

Comparison of Crop Yields.

Average Crop Yields, 1910	Hay tons. lbs.	Corn tons. lbs.	Oats. Bus. lbs.	Barley Bus. lbs.	Roots Bus. lbs.
Macdonald College	4 984	18 657	56 17	46 13	1000 23
Quebec Province	1 1560	9 240	29 22	24 2	324 30
Ontario Province	1 1680	9 800	39 13	29 36	426 54
Canada generally	1 1640	9 760	32 27	24 30	402 20

A study of the above table will show that there is great room for improvement in the methods carried out on the average farm of this country.

Comparison of Value of Crops.

Taking as a basis the above actual figures of yields of various crops at Macdonald College in 1910, the following comparisons are still more astounding, showing how crop values could be more than doubled by adopting the methods in vog at the College.

Crop	Value of 1910 crops of Canada according to Census Bulletin	Value of 1910 crops in Canada if yield equalled College crops	Value of 1910 crops in Quebec by Census Bulletin	Value of crops if yield equalled College crops.
Hay and Clover	$149,716,000	$374,290,000	$51,114,000	$127,785,000
Oats	114,365,000	197,000,000	21,626,000	41,185,000
Barley	21,400,300	40,277,000	1,816,000	3,208,000
Roots	21,444,000	53,823,000	3,556,000	11,074,000
Corn	11,957,000	24,000,000	1,703,000	3,518,000
	$318,882,300	$689,390,000	$79,815,000	$186,770,000

Importance of Demonstration Farms.

While a vast amount of information has been distributed from Experimental Farms, which has been put into practice by the up-to-date, shrewd business farmer, very few of the many who attend institutes, visit experimental farms and colleges, and listen to addresses, put such advice into practice, although it is practice rather than knowledge that makes the successful farmer. The reason for this apparent indifference lies in the fact that the advice given by experts at meetings, etc., must necessarily be of a general character, and as no two farmers have the same conditions to contend with, and therefore cannot carry out the needed improvements in the same way, the individual farmer is afraid to venture on new methods without being sure that they will be successful. What is needed is that the expert should help the farmer on his own farm to achieve the desired result, after which financial result through his own efforts would follow. This would arouse general interest in the neighborhood, and public meetings could be held on the illustration farm for the discussion of farm management, with practical demonstrations.

Kind of Demonstrations Needed.

Rotation of crops; its benefit in enriching the soil. Selection and cleaning of seed. The growing of alfalfa and corn and roots. The advantage of thorough preparation of the soil; deep in the autumn with implements that will not bring the subsoil to the surface; shallow and thorough preparation in springtime, and especially working the soil when it is in the right condition. Importance of intensive tilling during the period of the growing crop. Conservation of soil moisture. The importance of a high content of humus in the soil. The uses of legumes, their value as fertilizers. Best methods of applying barnyard manure. Destruction of weeds and insects. The accomplishing of more work in a day by using more horse power and better implements, and the use of implements on hand to do better work. The value of underdraining, how to instal it. Keeping an account of each farm product in order to know from which the gain or loss arises.

How Boys Profit by Demonstrations.

Mr. Fixter submitted a list of 100 boys in the Corn Clubs of the Southern States who, under the Farmers' Co-operative Demonstration work of the United States Department of Agriculture, made an average of 133.7 bushels of corn per acre in 1910. These are not all the boys who made large yields; reports received duly show yields above 100 bushels although the highest average yield recorded in the United States for that year as made by farmers is 47.9 bushels per acre, while the figures run as low as 12.6 bushels per acre.

SECTION 2: THE COLLEGE IN RELATION TO THE TRAINING OF TEACHERS.

Information obtained from Dr. S. B. Sinclair, Head of the School for Teachers of Macdonald College.

Undoubtedly a teacher requires, in addition to ordinary scholarship, professional training—which in one sense is technical training—and the teacher's

value is increased thereby. This training should combine the investigation of the child mind and social conditions, supplemented and reinforced by the history of education in other countries and comparative studies of different educational systems.

No training is worth while unless it brings the teacher into actual contact with conditions of school practice and particular forms of work (such as Manual Training, Nature Study, etc.) which she will be expected to teach; but experience of that sort alone, without enlightened education would not be sufficient. All the help of accumulated knowledge should be given, plus experience in actual teaching and doing and managing.

The modern movement in education retains the best elements of the older education—what might be called the "sound training" or the "three R's", and without having the child ignorant of these " core" subjects, he can add other and more practical subjects admitted by modern life and modern society. Manual Training in any form is not a hindrance to progress in the three R's.

The Ideal Education.

The best education for a child would be to devote a third of the time to the "humanities"; a third to science including arithmetic, Nature Study and natural science in various forms; and a third to sensory-motor forms of activity, such as Manual Training, oral reading, writing, vocal music, relief-map-work, and later on, woodwork, cooking and sewing. That would be a working hypothesis.

Reading can be taught faster in connection with words that concern a child's active operations; and the modern method of teaching reading—by phonetics on one side and the sight reading on the other—renders it necessary from the very beginning for the child to have books that interest him, i.e., on subjects closest to his own experience. Children who a year ago did not know a letter, now recognize at once such words as "manipulation" and "Macdonald College" when written on the board. They have in themselves the power to recognize as a form almost any word that is presented to them, and this power is gained by teaching the sounds of those letters and by having the child read silently a word in which he is interested. The words have, in the main, a direct meaning to him, and the lesson correlates them more closely to his activity. A reading lesson under a trained teacher on something that the child has been doing in his garden will enable a child to read in half the time of the old method. On the whole children are more interested in the Nature Study lessons than any others.

Need of Training Through Work.

There should be sensory-motor training for all children, not necessarily technical or conventional, but something that issues from labor that satisfies the child; and it is well to have such work grow out of some life experience which leads somewhere, as in the planting of a tree, etc. If a child does no work till it reaches adolescence it may be neither able nor willing to work afterwards; and the prevention of a child from doing useful and beautiful work with his hands till 14 would prevent him from becoming a satisfied workman.

Cooking is a particularly good form of Manual Training activity, hence Domestic Science should come under the head of Manual Training, because it lends itself specially to the carrying out of design and the working out of the idea of the child in expression, and the getting of results fairly quickly—all of which are necessary at that time of life. It would not be a good plan to leave Manual Training, Domestic Science and Nature Study out of the elementary schools and give them more time in High School, because one-third of the time should be devoted to preliminary training leading up to this work.

When Studies Should Begin.

A child of seven or eight is just where Nature Study proper should come in, for he is at the stage when he is looking for the beginning, middle and end of things, and is working to develop skill in certain ways; and while he would not be a scientific gardener he would be learning the elements of gardening and learning what would prepare him for the elements of work in later years. Cooking also should be begun at 10 years of age. Postponing Manual Training and Nature Study subjects till High School would not give a child as good a chance to learn the 3 R's, nor to become a good citizen. Elementary science as a preparation for the science work of the University would give pupils a better sense of proportion as regards values of knowledge.

The introduction of sensory-motor activities in earlier years is necessary, but difficult, and can only be done by trained teachers who know how to deal with those subjects. Hence, unless the rural school is large and the population wealthy, consolidated schools would be better, with male teachers in some of them. The expense of consolidated schools could be largely reduced if the teacher lived in the smaller of two sections, and drove the children to school and back; and this would also give the benefit of supervision. This and the training of teachers are the conditions, and the Government should assist.

Natural Powers Should be Developed.

In a system of elementary education the children should be trained how best to use the powers naturaly developed by education so that they could not be easily exploited by more powerful and more intelligent people. The pupils' activities should be so directed that they will develop individuality, initiative, leadership and strength of personality. Social ethics can be taught in the lower school to a certain extent if the teacher's personality is strong enough; and at the beginning of the adolescent period a training in the facts of industry, the production of wealth and its distribution, might be brought in, correlated with other work. Civics and history can be taken together. Children in the fourth book should know something of the changes in production and distribution brought about by machinery, and the consequent relationship of the worker to his employment. Of course this should not be introduced too early, but the beginning of the adolescent period would be about the right time.

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SECTION 3: THE COLLEGE IN RELATION TO HOUSEHOLD SCIENCE AND ARTS.

Information obtained from Miss Catherine A. Fisher, Head of the School of Household Science of Macdonald College.

The students in the School for Teachers take a short course in Domestic Science, but they merely get an initiation into the subject, and not enough to carry on much work in their schools. It would help them if the course were modified so as to teach the value of foods, and methods of sanitation and ventilation.

Girls take up Domestic Science as an entirely new subject after spending several years in academy subjects, and consequently cannot make as rapid progress in it unless they give it more time. Domestic Science subjects should be introduced into the elementary school, so that girls know something of it before they come for their professional course.

A two years' course would probably give them enough to teach the subject in an elementary school in a limited way, but in order to make the work valuable in a school it is necessary for teachers to be thoroughly acquainted with the subject-matter, which can only be done by giving as much time to it as to other subjects.

Demand for Trained Women.

There is an increasing demand for trained women in institutions, and the supply is not sufficient. Native talent does not take the place of training, but the higher the talent, the better is the result of training.

The professional course should be developed in Canada, as there is such a demand for trained women. Hospitals demand trained dieticians, and we have to take American-trained teachers.

Dressmaking and millinery should be taught in elementary schools, and very young girls can take sewing as manual training, purely from the manipulative side. Millinery could be developed to great advantage in a professional way as well, by trade schools which prepare supervisors and leaders and teachers, because we have not got these, and need them.

Training of Supervisors.

It would be a splendid thing for Canada in adopting technical training for women, to attempt first to train supervisors and teachers. This would be advanced technical training; but girls at school could be taught sufficient to use it in their own homes, without taking the more advanced work unless they had special aptitude. The harmonizing of colors can be taught and cultivated to a certain extent; there is prime need for this knowledge, and all girls taking household science should include the study of color.

There is so much science involved in cooking that girls should take pure science subjects along with it, and it is not the best use of time to give them that until they are able to take it along with pure science.

SECTION 4: THE BEARING OF SCIENCES UPON EDUCATION AND RURAL LIFE.

BIOLOGY.

Information obtained from Mr. Wm. Lochhead, Professor of Biology at Macdonald College.

It is very difficult to ascertain the percentage of injury to cereal crops from diseases and weeds, because so many farmers do not recognize them; 10% would be a low estimate of the loss through smut and other common diseases in Ontario, and 60% to 75% of that loss could be prevented without much expense by good farming, good drainage, good cultivation, by keeping down weeds which harbor fungus pests, as well as by spraying and using chemicals and treating seed. The crop would be increased by good farming, and thus compensate the farmer for his trouble. The healthier the plants are kept, the less danger of fungus there will be. Some diseases cannot be treated except by good farming, but smuts and many others could be prevented, and from 50% to 75% per cent. of diseases can be treated. By an intelligent knowledge of insects and their habits many diseases could be prevented, and the best remedy for insect pests is rotation of crops. In orchard crops the codling worm and plum curculio can be controlled almost entirely by spraying, and 90% to 100% of the fruit sold as first-class.

In teaching Biology, it is preferable to use the common things with which students are familiar, and make them apply their knowledge to everyday life. This makes it more interesting and consequently a better means of education, strengthening the science rather than weakening it. A subject of economic importance should be chosen as an illustration. Owing to the difficulty of getting material for Biology in winter, it would be a good plan to take this subject in spring and fall, and Physics in winter.

Students who take the long course are well trained in Biology and understand the principles of processes of prevention of insect pests, and the courses are so correlated that while they are getting the course in Biology proper, weeds and insect pests, they are also getting a course in farm crops, which prepares them for the question of remedies. Students in the School for Teachers get a course in Physiology.

Short Courses, Illustration Plots, Etc.

Short course students get more information relatively than any other class, for they come with definite purpose, are mature, and have had practical experience, all of which helps them to realize the importance of the teaching and to assimilate a large proportion of it. Their training is best described as elementary rather than superficial; it is really intense, for as they cannot cover a wide field, the information must be confined to a few topics in order to make it valuable.

A central illustration plot and School Garden at a place convenient for farmers, where short lectures on weeds, insects and diseases could be given in summer evenings, would be helpful. The difficulty would be to make the lessons short

enough. The best way to reach such people is by demonstration, and with specimens in that School Garden much could be shown in an hour regarding the loss caused by pests, weeds and fungus diseases.

The Quebec Society for the Protection of Plants has done good work, and the Pomological Society does similar work for fruit growers, the Department of Agriculture providing the money.

If the students could have access to the Experimental Farms for research work, it would make a greater impression on the farmers. A contribution from the Dominion towards the training of students to carry out investigations would be excellent, and it is most difficult to get such men.

The College is connected with the Journal of Agriculture, and by this means is able to reach the farmers better. Dominion funds might be legitimately used for the dissemination of knowledge through a subsidized press, in the form of bulletins, etc. The more intelligent farmers appreciate the bulletins, and the demand is increasing rapidly.

Some farmers claim that cultivation and drainage, without spraying, will check codling moth, but the best fruit growers adopt all three, and find it pays.

With regard to the best plan to adopt for the improvement of rural education much has been said in recent years, but still there is room for discussion. Just what form the initial movement should take is an important matter. It seems to me, however, that the following plan would be practicable and would at the same time lead to most valuable educational results:—

(a.) The Government to build, equip, and partially maintain, six or more schools in those rural parts of the province where the grade of school is elementary.

(b.) Each Government school to serve specially the needs of the more advanced pupils of several sections, and to act as a continuation agricultural school where, in addition to the ordinary school subjects, elementary agriculture and household science are taught;

(c.) The employment of well-paid, qualified teachers for these schools, preferably graduates of Macdonald College;

(d.) The employment during the summer months of such of these teachers as are specially qualified, as agents of the Provincial Department of Agriculture to help and advise the farmers of the district to organize active farmers' and women's institutes or societies, and to conduct special short courses in agriculture as time will permit; and

(e.) The Government to add to the number of such schools year by year or as fast as the supply of qualified teachers can be found for the work.

This plan does not disturb the existing order of things, but does provide a means whereby the older boys and girls may secure some adequate preparation for their life work. It would involve an outlay of, say, $20,000 a year on the part of the Government, but the ultimate benefit to the province would, I feel sure, be beyond money value.

PHYSICS.

Information obtained from Dr. C. J. Lynde, Professor of Physics at Macdonald College.*

There is no difficulty in finding subject matter for Physics courses relating to the common things of the house and farm, and this gives a boy a much better grip on the subject than the old classical course, whilst not in the least limiting his understanding of the big things of Physics.

Boys at Macdonald College are not allowed any textbook for the first three months, and are kept down to the ordinary things they have known all their lives in connection with farm and domestic operations, with the simplest material borrowed from their homes or stores.

The principles of Physics could be easily taught to young children in connection with Nature Study, because they are naturally of an enquiring turn, and want to be experimenting and finding out things. Boys would understand mathematics much better if they were given Physics sooner, in connection with it; and the elements of Physics could well be taught in connection with Manual Training, part of the time being taken from the arithmetic period; and a fundamental knowledge of Physics would be of great benefit to boys going to a more special industrial school after 14, as it would enable them to understand mechanical drawing, while, on the other hand, they cannot understand mechanical drawing without knowing the fundamental principles of Physics.

Machinery is becoming more common on the farm, and the farmers' children should know more about Mechanics and Physics. The pupils of the School of Agriculture and the teachers-in-training are given instruction regarding water supply, which is not a difficult matter for anyone who understand Mechanics and Physics; and a water supply in country districts would improve the standard of living, make things easier for the women, and thus leave them more time to devote to their families.

Correspondence Course Suggested.

A correspondence course could easily be arranged on the Physics of soil, the handling of farm machinery, and kindred subjects; and such a course would mean money back to the whole country in increased crops. Instead of bulletins from the Experimental Farm at Ottawa, as now issued, a general course could be systematized, and the bulletins amplified so as to form a reading course for farmers. This would not be regarded as interfering with Provincial privileges in education. The staff of Macdonald College could easily perform such a service for a given area, if the money were furnished, and institutions would not need to be increased. $1,000 thus spent would bring back more good to Canada through existing institutions than through new ones.

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* For Dr. Lynde's valuable memorandum "Suggestions regarding the Teaching of Physics and Chemistry in the Elementary and High Schools of Canada" see Part II, page 124.

What a Boy Should Know.

A boy of 14 going into industrial life should have been taught enough Physics to make him useful. He should be familiar with the lever principle, which he will constantly find applied, also the principles of pulleys, wheels, axles, inclined planes and ordinary simple machines; perhaps he could also have learned the theory of liquids, pressure, pumps, etc., the principles of heat, and the various kinds of heat engines, which knowledge would make him still more valuable. A boy of 14 could easily be taught all that, but not on the old methods. The valuable principles can be reduced to a fixed number, which he should know at 14; after that more new principles could be added, and a course could be carried right through to Secondary and University Education, so correlated that it would be of value to those going into professions. It is merely a matter of going deeper into certain principles for those who wish to proceed further.

Boys here are taught simple experiments with ordinary tools and implements involving the lever principle, and they make the application—e.g., they will select the best fork for loading a hay wagon, and know the reason. A boy going into a factory would have made the principles he has learned part of his life so that he does not forget them, and thus becomes a far more intelligent man. He would do things for a reason, and would be more valuable for having learnt Physics, as he would know what is behind what he is doing; and this study will also make him more adaptable, because if he has been properly taught he sees all that is correlated to his work. The interest in Physics is a natural one, which will grow with the boy, and it is one of the studies that lends itself as impressively as any to getting a boy to understand the relation between cause and effect.

NATURE STUDY.

Information obtained from Dr. John Brittain, Professor of Nature Study at Macdonald College.

In teaching Nature Study to students, it is preferable to use familiar objects from the fields and neighborhood. Botany is here taught to show students how plants live and grow, not for the sake of classification. The old botany text-books would rather repel children than attract them.

Children should learn some things about plants when they are quite young; others they cannot learn till their reason is more developed. It is no use appealing to a child's reasoning powers before 10 years old at the earliest. A child of 11 or 12 could begin to understand and appreciate instruction which he could turn to account on the farm, and at that time there would be industrial as well as educational or cultural value in the teaching.

The beautiful should be taught as well as the useful, for a child sees the beauty of a flower before it knows how it grows. The economic or homekeeping value can be given at an early age, and the mind can get some benefit for economic use afterwards in the house from the Nature Study work in the class room.

Nature Study in Language Teaching.

Nature Study work for observation and subsequent recording trains children to express themselves accurately and reason to a definite conclusion. Every child should base its compositions, or efforts at expression in language, on observations of things which it has seen, felt and understood. Nature Study properly carried on may be a means of improving the use of language.

Cheap and simple equipment of a Nature Study laboratory is preferable for an elementary country school. The average cost would be $5 or $6 a year, perhaps a little more the first year.

A School Garden is a desirable part of the equipment, but to be any use it must be well kept. If a proper one is not possible, it is better to have just a few small plots or window-gardens.

A School Garden should be at least an acre; half for playground, the rest for trees, shrubs and plots. Two acres would be better, so that they might grow some of the native trees and study them. Thus the school would be made a centre of attraction, and at the same time would teach the children to enjoy country life. Young people might go a School Garden occasionally on summer evenings if it were made interesting. It might be a made a centre for social gatherings, thus uniting social and educational opportunities.

Illustration plots would be of advantage to parents, but children are too young to care for economic problems, and have to be appealed to through their sentiment and emotions. We can only get young people to stay in the country by getting them interested in country things—birds, cattle and plants; people stay where they love to be and where they are interested.

Men and Women Assist Teachers.

A young teacher of 18 who has been well trained in Nature Study could teach many things about plants and animals that would make boys more intelligent farmers, though she could not teach practical agriculture, which cannot be taught in school. Capable men in the locality who understood children, and how to teach them, might give volunteer service for half a day once a month to the older boys. Both men and women are needed in teaching, and as rural teachers are usually young, it might be well to associate with them maturer men and women from the neighborhood, provided they were well prepared for the work; but some men would do a lot more harm than good. It is easier to find County Councillors than right men for teaching. While the school merits more service than do roads and bridges, public sentiment does not yet recognize that.

The surroundings of a school should have natural beauty, and be well kept. The children should be encouraged to grow things at home and exhibit or study them at school.

There is no reason why they should not be successful farmers, and no need for them to be poor in the country. Young people leave the country because they see their way to better advancement in the cities, and if there were a wider dissemination of the knowledge of good things in the country, perhaps some of these young people would stay.

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CHEMISTRY.

Information obtained from Dr. John Snell, Professor of Chemistry at Macdonald College.

Chemistry is to a certain extent an abstract subject, and not easily grasped. It is usually introduced with a study of water. A paper-maker could hardly learn the constituents of subjects such as cellulose if he had only the elements of education.

Evening classes for bakers and confectionery makers could be arranged without much cost. Students here should get a reasonably clear knowledge of flour and water. Such a knowledge would be of value to bakers, as also would a knowledge of yeast processes and their bearing on the making of bread. It is proper for the High School to include work in Chemistry as related to the value of foods.

Students in agricultural chemistry here make determinations of fertilizers, but could not make an analysis. They should do enough to give them a clear idea of the fertilizing constituents and help them to understand terms met in their reading, but it is not necessary for them to make an analysis of soil. Demonstrations in class give them a chance of finding out whether they really understand or not.

CHAPTER XLI: SUMMARY OF REPORTS BY THE LOCAL COUNCIL OF WOMEN OF MONTREAL.

The following reports, including statements of individual members and affiliated Societies, upon the industrial and technical education of women, were submitted by the Local Council of Women.

In so far as reference is made to the school system and to educational establishments, *Protestant institutions only* are considered. In treating of women in industrial and commercial pursuits, no distinctions of religion or race were drawn.

SECTION 1: GENERAL REPORT ON WOMEN'S WORK.

(By Miss C. Derick, M.A., Assistant Professor of Botany at McGill University, and President of the Local Council of Women.)

Many people are uneasy at the employment of a large number of women and girls in wage-earning positions (probably about 33% of those between 15 and 24.) Economic changes have taken women's work from the home to the shop; the home is still the centre, but has become the centre of consumption instead of production, thus losing many of its educational functions. It has therefore become necessary for girls to take up definite work outside the home, to gain the mental and moral discipline resulting from the performance of regular duties and save them from seeking idle tasks to fill idle days.

A woman's work is to her the same source of strength and pleasure as to a man; self-respect is deepened by economic independence and her true womanliness is only fully revealed when every power is given opportunity of exercise. But this ideal has yet to be realized. In partial adjustment to new conditions, abuses have arisen; the remedy is not in restriction, but in liberty, provided that protection is given to children, that a good primary training followed by vocational training is open to all, and that reasonable hours, sanitary surroundings and fair remuneration are secured for all alike through legislation. This would deplete the ranks of the unskilled and thus improve the conditions of the labor market. The power derived from training and the stimulus given by the opening of all the highest positions to women would combine to produce desirable changes in their economic and social condition which restriction could never secure.

Fuller opportunities for vocational training are likely to be afforded. The Commercial and Technical High School has evening classes for both sexes, and others will follow soon. In the medical profession especially there is room for women as sanitary and school inspectors, teachers of hygiene, etc. There are post-graduate courses at McGill, but no undergraduate courses for those.

The aim of the inquiry was to include as many kinds of industries as possible, and more than one establishment of each kind, in order that a general view of the whole situation might be obtained. The establishments visited were with few exceptions of the larger and higher type, so that the facts represent the highest rather than the lowest level of the existent industrial conditions.

The scope of the inquiry was broad in character, and questions were addressed to both employers and representative employees.

The employers were asked to give the *number* of women employees, the minimum age of admission; the minimum, average and maximum *wage*, the proportion of *skilled* and *unskilled* workers, the manner or place of training, the possibility of promotion, the desirability of previous industrial or technical training; whether this should be included in the public school system or in day continuation schools; the desirability and value of evening classes, both educational and technical; the educational standards of employees; whether difficulty existed in enforcing labor laws, and the relation thereto of compulsory education; also the possibility of co-operation of employers in industrial training.

The employees, in addition to many of the foregoing questions, were asked what they would consider a living wage, whether they desired or would take advantage of evening classes, whether comfortable boarding houses were easily obtainable, and desirable recreations within their reach; if they had any knowledge of labor laws, and what improvements in the condition of women wage-earners they would suggest.

The results of the inquiry may for clearness and convenience be grouped under three heads:

1st. Women in clerical and commercial positions, e. g. secretaries, typewriters, book-keepers, stenographers, etc., in banks, offices and industrial establishments. Telephone operators were here included.

2nd. Saleswomen in shops.

3rd. Women in industrial establishments (excluding clerks, etc.)

Group 1: Women in Clerical and Commercial Positions.

This class of occupation offers suitable employment for properly qualified women. There is a constant demand for women stenographers and clerks in business and professional firms, and within the last few years this has extended to the banks. Clerical work is congenial, the surroundings are generally comparatively good, the hours of employment reasonable, and the chance of a living wage and of steady employment is afforded. Women who have received a good secondary education and are well grounded in English, and who have had a thorough business training have no difficulty whatever in obtaining good positions, with the prospect of rapid advancement.

Women employed in banks begin at $400 or $500 a year.

Stenographers earn from $600 to $1,200 a year, in exceptional cases even as high as $1,500, although young girls may begin at $25.00 a month. The majority are handicapped by a deficient education; the lack of knowledge of their own language, of spelling, punctuation, and of elementary composition and letter-

writing is a matter of general comment. After short courses at one of the private business schools, these young women seek employment for which they are only partially trained. Small wonder if their work is more or less unsatisfactory to their emyloyers; nor can they themselves ever hope to attain to the more responsible and remunerative positions. These are reserved for the exceptional or thoroughly trained woman.

In this group of wage-earners have been included the telephone operators. In Montreal there are at least 800 women employed who earn from $20.00 to $80.00 per month, according to their efficiency. These employees are trained by the Company, and the work is arranged in three shifts. Work at night and on Sundays is more highly paid. Apart from the nervous strain, which appears unavoidable, telephone operating seems a desirable employment for women.

Business and commercial training—apart from the four years' course offered by the Commercial and Technical High School—is at present chiefly to be obtained in private business schools. Short courses undoubtedly appeal very strongly to the immature and inexperienced and to those who are anxious to earn a living as soon as possible. The business school not only gives the desired instruction, but quite frenquently acts as an employment bureau.

The advisability of instituting short commercial courses in Technical Schools, open to those already well grounded in English, and affording a thoroughly practical business training, is, we believe, worthy of consideration. There is an ever increasing demand for such courses.

Group 2: Saleswomen in Shops.

There are many women wage-earners in shops who come under Group 1, and some, those engaged in millinery and dressmaking, are included in Group 3. In Group 2 are included only those engaged in selling.

In the higher grade department stores there are very few girls of 14 years of age, and these few generally act as errand girls. In less highgrade establishments and smaller shops, young girls may more frequently be seen, but at present not to such an extent as some years ago, before the introduction of the various cash-carrying systems.

Comparing the position of the shop-girl with that of the girl in domestic service:—

The shop-girl has clearly defined duties, and her hours of work have a definite limit, generally from 8 o'clock in the morning to 5.30 or 6 at night (with some exceptions), all her evenings and Sundays are free, and during these leisure hours she is her own mistress. At her work she is under the same supervision and discipline as her associates; from the moment she leaves her work till she returns to it, she is practically free to choose her own society and take what recreation she prefers without let or hindrance. She considers that her social position is superior to that of a domestic servant, and as evidence of this she is addressed as Miss (or Mrs.), while the domestic is called by the Christian name. Again, she is not at the constant beck and call of one individual, confined to one house and the monotony of the daily round, but goes to and from her work, and is brought in contact

with an ever varying stream of life which lends an interest and even a charm to her environment.

The disadvantages, not always realized, are sufficiently grave, but might be easily obviated. She often has but scant home comforts, perhaps has to prepare her own hurried breakfast, she must face the weather at all times; in many establishments she is required to stand the whole day long, not being permitted to sit down for an instant, a requirement most assuredly injurious to her physical well-being. Frequently the ventilation is extremely bad, and the employee constantly breathes a vitiated atmosphere, with sometimes extremes of temperature and exposure to draughts. Her wage is very often barely sufficient for her maintenance, and she may have difficulty in making both ends meet. In her leisure hour she naturally seeks amusement and relaxation, only to find that, as a general rule, recreation of a desirable character is offered to her only at prohibitive prices. If she is boarding, she seldom has any place in which to receive her friends, and very often there is no one to whom she can look for authoritative guidance. And thus it is that in an innocent search for pleasure natural to all, she is frequently exposed to temptations of a particularly insidious nature, the true character of which she sometimes does not recognize till too late.

There is a distinct need for comfortable and respectable boarding accommodation at reasonable rates, for working girls of all classes. It is to be hoped that there may soon be a business women's hotel. There should also be social clubs for working girls, affording parlours and halls, where innocent and desirable recreations might be provided and where both men and women might pleasantly mingle together in a thoroughly wholesome environment.

The work being done by the Y.W.C.A. is most excellent, but does not more than begin to meet the need.

Group 3: Women in Industrial Establishments.

In this group the inquiry was addressed to seventy-one (71) establishments. In about 22 instances no report could be obtained. There was either an absolute refusal to answer, a polite but repeated evasion, or a failure to send the promised answer.

Out of 71 establishments, 49 employers responded to the enquiry. 25 different kinds of industry were included, and reports were given of 22. A table is appended giving the number and varieties of industries, with approximate number of women employees, wages, hours of employment, standard of education, etc., etc., from which particular conclusions may be drawn if desired. The more general conclusions of the committee may be summarized as follows:

In most of the industries there is very little demand on the part of the employers for girls under the legal limit. Often the work is too heavy for young girls. In some instances no effort is made to ascertain the ages of the younger employees, more particularly where there is a scarcity of hands; this is more especially the case in large mills, and it is in such cases that the labor laws need stricter enforcement.

The minimum wage in most factories is about $2.00 per week (occasionally as low as $1.75) for untrained hands. In factories new and inexperienced hands

are at first put on a weekly wage while being taught the work, but are in a short time advanced to piece-work. For piece-workers there is very seldom any promotion other than increased earning power up to a certain maximum limit. Only in very exceptional cases has the worker an opportunity of being transferred to a different department or a higher grade of work. She is doomed to go on working at one little process—and her wages depend entirely on the degree of manual dexterity and unremitting industry of the individual. If she is deft and industrious and works full time, she can earn a comparatively good wage—from $10.00 to $15.00 per week. A few exceptional women in exceptional industries earn as much as $20.00 or $25.00 per week. In laundries the workers have more chance of learning the whole process and those who are skilful ironers may earn on piece-work $12 to $15 (max.) per week.

The conditions in dressmaking and millinery establishments are somewhat different. Young girls absolutely unskilled are taken in as apprentices, and not paid at all or begin with an allowance for carfare or 50 cents a week. They have a chance of learning most parts of the business, with the exception of cutting and fitting, and are paid according to their ability from $1.00 to $10.50 per week. Really skilled workers get from $11 to $25 or even $30 per week.

In the custom tailoring establishments the work is nearly all skilled and wages range from $5.00 up—the maximum for women being about $20 or $25 per week. There is a demand for skilled workers for which there is no corresponding supply here. The tailors state that they find it necessary to import labor, under great difficulties. There is no opportunity for acquiring such training at present in Montreal.

There is a demand on the part of the employers and employees alike for training in needlework and machine operating—also for skilled workers in leather and for skilled laundresses.

Employees desire opportunities for the acquirement of French or English, a better primary education, facilities for training not only in hand sewing, machine operating, cooking, millinery and dressmaking but an opportunity for obtaining such a training as would give them at least a chance of entering the various industries as skilled workers, at a fair wage. When they enter as unskilled hands, there is no prospect of promotion before them. The vast majority of women workers fall into the unskilled class—those ranked as skilled are frequently merely deft at one small process.

Factory employees place the minimum living wage at $7.00 per week, but others place it at $8 or $9 or even $10 per week, and as an ordinary worker earns from $4.50 to $5.50 per week, the average worker is not paid a living wage and is therefore not economically independent. A great many girls live at home or with friends and relatives, and in this way are boarded at low rates or contribute to the support of the family. Board outside the family cannot be obtained under $3.50 or $4 per week. The balance of the wages has to go for clothing, car-fare, recreation and incidental expenses.

Employers, as a rule, approve of evening classes, in theory at least. It is felt that the opportunity should be afforded workers of improving their education, academic, commercial or industrial. In practice, however, many disapprove

strongly. They state that after working ten hours a day, the body and mind are fatigued and the evening should be spent in recreation. The strain of attending classes in the evening is too great and unfits them for the daily work.

As a matter of fact, there is small evidence of women in factories taking advantage of the evening classes already opened. It is the wage-earners of the 1st and 2nd groups and domestic servants who attend evening classes at present.

Women wage-earners are absolutely ignorant of labor laws, only being familiar with the particular conditions which affect them individually. Some of them suggest shorter hours or better pay.

Finally, in regard to the educational standards, the average shop woman has had a primary education of some sort, but seldom up to the highest grade—she can read and write and do simple arithmetic. In many factories the majority of the employees are utterly illiterate, others can barely read, or read and write with difficulty. In no single instance has the standard been considered sufficiently high. There has been an almost unanimous expression of opinion in favor of compulsory education. At present whether the child attends school or not rests with the parents; it is impossible to obtain statistics in regard to the number who never attend school. The question arises: What are the girls doing who leave school at from 9 or 10 to 14, who are not permitted by law to work in shops and factories?

Recommendation of the Local Council of Women.

The results of the inquiry which have been submitted to you are in harmony with those obtained in the United States and Great Britain, and lend support to several reforms which the Local Council has tried at various times to secure. The conclusions of the Local Council may be summarized as follows;—

1. A school census should be taken yearly.
2. Education should be compulsory, at least between the ages of 5 and 14, and devoted entirely to general education. Vocational training should be deferred until this preliminary training is completed.
3. In order to supplement the work of the primary schools by giving opportunities for further training to those who are already at work, evening classes should be provided. They should be of three types:
   (a) Continuation classes giving the elements of a general education.
   (b) Recreational classes, for developing varied interests and for imparting a knowledge of domestic science.
   (c) Trade classes for teaching all parts of different industries, increasing skill and serving as an aid to promotion.
4. Free Day Trade Schools should be established for those who have completed the Primary School course.
5. There should be Commercial and Technical High Schools, qualifying students to enter into higher grades of work and meeting the needs of those who can continue in school for at least four years after the Public School course has been completed. Shorter courses might be arranged for those who are obliged to enter gainful occupations before they are 18.

6. Provision for higher technical and professional training should also be made.
7. Employment Bureaux, making a close connection between schools and employers, should be established.

SECTION 2: AS TO THE CANADIAN HANDICRAFTS GUILD.

(By Miss Phillips.)

The aim of the Guild is to encourage, revive, retain and develop Canadian Handicrafts and Art Industries throughout the Dominion, such as,

Weaving	Lace-making
Woodcarving	Embroidery
Pottery	Leather-work
Basketry	Metal-work
Rug-making	Bookbinding
Sewing	Knitting
Furniture	Glass-blowing.

This is done by,

1. The establishment of good standards.
2. Educative exhibits sent to provincial exhibitions and county fairs.
3. Judges supplied to such exhibitions who give criticisms to those who desire them.
4. Instruction given by correspondence.
5. Literature and magazine on special crafts sent to workers in out of the way places.
6. Advice given by members of our Committee during the summer in country districts.
7. Lessons given by volunteers.
8. Prize competitions judged by experts, whose criticisms are passed on to craftsmen when advisable.
9. The offer by the Guild for selling good work.

Notices have been sent to craftsmen and women now on the Guild books, for a prize competition to be held in February.

Many classes have taken advantage of the opportunities offered by the Guild. We welcome work from the highly cultured or from the unlettered peasant. Prices are fixed by the worker to the Guild, no commission being charged for selling. When prohibitive prices are asked, the Guild advises the craftsman that sale will be difficult, perhaps impossible, and they are at liberty to reduce or not at their discretion. The Guild has paid to workers within the past five years about $24,000 to $25,000.

The number of crafts represented is increasing; the quality of the work is improving; colors are combined more harmoniously, and the use of the vegetable and natural dyes better appreciated. Workers begin to understand the value of promptness and precision in the execution of orders, and are generally better

able to understand business-like ways and to conform to them. At first it was difficult to get some of them to keep their promises.

The Guild is prepared to give lessons in certain crafts and is planning to send out instructors in the near future.

There seems to be a growing feeling that the curriculum of schools is already over-crowded. The Guild holds that instead of adding to the burden of the growing child, the study of the arts should be delayed and taken up when the young people, having left school, are first feeling their way toward balance and self control, a way that is made vastly more attractive by the existence of an absorbing interest in congenial and beautiful work.

We desire to bring particularly to the rural population through those means contentment and well-being, and to stem the stream from country to town, which is recognized as a strain on both town and country. We wish to bring to the country people the advantages of the town and to avoid concentrating in the town such advantages as can, with our organization, be carried to even remote parts of the Dominion.

It should be remembered that though the Guild buys and sells, it is not, and is not intended to be, a money making business.

We should not be able to carry on the work at all had we not enthusiastic volunteers. While by the utmost care, our manager is making the shop pay its expenses now, promotive work, exhibitions, prizes, teaching, and many branches of our work must be supported in some other way. Members' subscriptions have long ceased to cover even printing and stationery.

During a recent trip through the North west, we found not only the riches of soil, water and forest, but also the wealth of an extraordinary amount of skill and knowledge brought to us in Canada by men and women from many countries. In addition to the wonderful basketwork of the west coast Indians, who have raised this industry to an art, there are the various characteristic peasant crafts and the work of the trained educated craftsman, such as Chinese jewelry in B.C. This wealth is hardly appreciated at its true value. The intuitive sense of colour and knack of hand in the Indian and peasant, the growth of centuries, will soon die out or become degraded if not encouraged properly. The younger generation, both through ignorance and a natural tendency to over-estimate the new and undervalue the old, are not likely to continue their parents' crafts and are inclined to look upon them with contempt as evidences of a less prosperous condition of life. It may be noted that their taste in these new forms of work is not so pleasing, possibly because they have not the opportunity of seeing the best.

Without encouragement the right hand of the craftsman will soon forget its cunning, or he will go further south and we will be the poorer for the loss of skill needed in the near future.

The Guild realizes, therefore, even more fully the work it can so inadequately accomplish. It urges that all means be taken to maintain a right view of every kind of manual labor and to ensure for knowledge and excellence in craftsmanship that honor and respect willingly accorded to other forms of knowledge.

Much could be done to keep a right point of view before the child even in school life, and afterwards by means of special classes and schools, the characteristic

industries and crafts of each locality could be maintained with benefit to the individual, the community and the country at large.

A well balanced education would be achieved and an efficient population result.

The work extends from Prince Edward Island to Vancouver. Many settlers are abandoning their crafts for want of a market, and the Guild furnishes this. Nearly $25,000 was distributed between 1905 and 1911.

The Guild forms a bond of union for the many races composing Canada's population.

SECTION 3: AS TO DOMESTIC SERVICE.

(By Mrs. Radford.)

We believe that there are about 8000 maid-servants in Montreal. The returns of the immigration agencies show that of the 3364 women and girls, who arrived in Montreal during the past year, 1001 remained in the city, the majority entering domestic service.

The replies given to questions sent by this committee to a large number of families were almost unanimous in regard to the following points:—

1. There is great difficulty in securing competent domestics, especially cooks.

2. Employers prefer experienced, well-trained maids, although a few mistresses are both able and willing to train their own servants.

3. The wages offered vary from $8.00 to $10.00 per month for an untrained girl to $40.00 per month for a first-class cook.

4. Indefinite hours of service and false ideas in regard to the status of domestics, and the mistresses' own lack of training in housewifery probably account for the fact that there is an insufficient supply of efficient maids of all kinds.

5. Employers are usually willing to allow domestic servants time either in the afternoons or evenings to attend classes in domestic science.

6. The demand for such classes is great, not only on the part of those born in Canada, but on that of immigrants. Although many of the latter have certificates from European institutions, they should have and are anxious to secure further training.

Courses in Domestic Science in the day schools and in evening classes are being provided by the Protestant Board of School Commissioners. At the Commercial and Technical High School, there are now eight classes in cookery, five in sewing and two in dressmaking. But more extended opportunities are being demanded by girls who wish to become expert in the various branches of housework, and in the care, feeding and training of young children.

So, too, courses which would rank with other departments in a higher technical college or in a faculty of Applied Science in a good University are necessary in order to train the teachers of housewifery in schools, settlement workers and the housekeepers of large institutions. The demand for the services of such women seems in all places greater than the supply.

The further provision of continuation schools or classes from which servants might obtain diplomas, certifying to their efficiency in various branches of housework, and the training of mistresses not only in household arts but in the underlying sciences, will do much to improve conditions. But as Miss Mabel Atkinson of King's College, London, has pointed out, housekeeping will remain a backward industry until there has been worked out a method of organization which will secure co-operation without detracting from the privacy of the house.

SECTION 4: REPORT OF SUB-COMMITTEE ON EDUCATION.

(By Miss Hunter, Principal of the Girls High School, and Miss Hibbard, Supervisor of Primary Work in Public Schools.)

The Superintendent of the Protestant Board of School Commissioners reports that in the year 1909–1910, 7218 girls were enrolled in the Commissioners' schools. That very few out of this number completed the public school course is shown in the Commissioners' report for 1909–1910, where it is stated that less than fifty per cent of the Fourth Year pupils finish the Public School course.

There is little doubt that these children, leaving school at such an early age and with so meagre an education, generally enter some occupation which is unsuitable and physically, socially and mentally retrograding.

In 1909–1910 only 52 out of the 266 pupils who entered High School remained to finish the course of four years.

From the Commercial Department of the Commissioners' Commercial and Technical High School about 100 girls leave usually to become wage-earners, and from the Technical Department about 40 girls leave for the same purpose. These girls enter offices as stenographers, typewriters and general office assistants, or business houses as book-keepers, assistant book-keepers, saleswomen and cashiers, having been in attendance at the Commercial Department; those leaving the Technical Department generally become teachers, while a small number become dressmakers' assistants and others go into millinery. Should these girls remain for the full four years' course, they might become skilled workers. Those girls leaving generally supplement the training they have received with a short course in a business college, especially those not remaining for the full four years' course, but, while the girls are taught sewing, and the facilities and equipment are adequate in the Commercial and Technical High School, the time—a few hours each week—cannot prepare them for wage-earning. Should these girls have one, two or three years' work with lessons in sewing every day, they might then become expert dressmakers and milliners; this not being the case, it is impossible for girls to pass from the Commercial and Technical High Schools into commercial and technical industries as skilled workers.

The minimum salary earned by these girls leaving the Commercial and Technical High Schools is $4.50 per week, the average wage $5.50 per week, and the maximum $8.00 to $10.00.

There is at present in Montreal little opportunity offered to young girls who have completed the public school course to secure training that will enable them to enter industries capable of becoming skilled workers, if not as skilled workers. A trade school offering opportunities in training in Millinery and Dressmaking, Designing, Book-keeping, Stenography, Chemistry, Electricity, etc., should be within reach of those wanting it.

Entrance to such a Trade School should follow the full Public School course, pupils being admitted only after the completion of the Public School course or its equivalent, which would be ascertained by an entrance examination. To put any of these specialized subjects into the Public School course would be a mistake, as the early years of a child's life from a psychological and sociological standpoint, are best spent in acquiring the foundation studies necessary to an intelligent, economic and happy pursuit of any trade or industry.

At present teachers for industrial and technical classes have to be obtained from other cities or centres, and it is desirable that a training school for such teachers should be established within our own Province.

The number of teachers employed in the Commissioner's Schools is 455. Of this number 408 are women, 22 of whom are University graduates.

The salaries for teachers are as follows: Minimum salaries for men $600, for women $430; the maximum salary for men is $2,000, for women $925.

The proportion between the salaries received by men and those received by women is thus: women receive ⅘ in the Public Schools of the amount men receive, while in the High Schools women receive one-half of the amount men receive.

SECTION 5: REPORT OF A SUB-COMMITTEE OF NURSES.

(By Miss Grant and Representatives of the three Societies of Nurses.)

There are about 351 trained nurses carrying on their profession in Montreal; of these 35 have maternity training only and 85 are from Hospitals in other cities and towns.

Three years is the general course; it has for the last six or seven years included maternity training and is considered adequate.

Applicants generally enter the hospitals directly from their homes; a few have been teachers or stenographers. All must possess a good grammar school education or its equivalent, preference being given to those who have had a course in Domestic Science.

The addition of Elementary Chemistry, Physiology and Hygiene to school courses would be helpful.

Only women from 23 to 35 years of age are admitted.

The average income of a trained nurse is $600 per year. Ten to twelve years is the average length of time during which a nurse actively engaged in private nursing can expect to continue her work.

There are many untrained nurses in Montreal. Of these, some are graduates of small hospitals, others have failed to take the full hospital course, and many have

only home experience. If the fact that they are not trained were fully recognized, they would not interfere to any great extent with the trained nurses. Provincial registration for every graduate of a recognized training school, entitling her to the use of the letters R. N. (Registered Nurse) after her name would probably diminish grievances which arise from the competition of untrained or partially trained women with trained and would give the graduate nurse a better standing in the community.

SECTION 6: EDUCATIONAL AND EMPLOYMENT BUREAUX FOR YOUNG WORKERS.

(By Miss Ethel Hurlbatt, Warden of Royal Victoria College.)

In England and Scotland the local authorities are empowered to carry on Bureaux for helping boys and girls to choose suitable vocations. (See Mrs. Ogilvy Gordon's book). Some knowledge of the needs of the workshop must influence the schools, whether primary, continuation, industrial or technical, and they should prepare workers. Industrial and technical education cannot be within the reach of the majority of workers unless employers co-operate.

It is desirable to direct children to occupations for which they are most suited and in which there is a demand for their labor, and to prepare them to enter these employments; to protect them from the injury resulting from unfavorable conditions of unskilled labor, and to prevent their drifting into casual employment. The Bureaux are under the management of the Education Authority, co-operating with the City Council, Board of Trade, Trade Council, etc. The employer and Educational Authority are mutually benefited by the interchange of information and understanding; the children are guided into suitable employments, and kept in sight until ready to start work for which they are adapted.

Montreal is particularly liable to suffer from the evil of casual employment, owing to lack of compulsory education. The raising of the school age to 14, whilst useful as factory legislation, still leaves children the victims of the necessity or cupidity of parents, and liable to enter the ranks of the unemployed and unemployable in later life.

The whole value of these Bureaux consists in their intimate connection with the school.

SECTION 7: GIRLS' CLUBS IN MONTREAL.

(By Miss Ethel Hurlbatt, Warden of Royal Victoria College.)

Clubs may have an important influence on girls between 14 and 17 who are under no formal educational influence; this has been shown in England. Opportunities for further education do not appeal to those who pass out of the primary school, still less to those who have not even had that much education. 50% of the children in Montreal leave before the end of the school course. Working girls are too tired for ordinary night school, but carefully managed clubs might in the

end afford more effective stimulus. Other clubs teach recreative handicrafts, such as plaiting, needlework, paper-flower making, leading to more advanced work in dressmaking, millinery, cookery and laundry work. Singing and physical culture are also popular subjects, and have a good influence, by bringing girls under discipline. The clubs attract the girls by their social, moral and recreative influence, and the classes need not be of the rigorous type of the ordinary evening school, while they can and do gradually interest the girls in education. In Boston the club has a beneficial effect upon the girls' condition by pledging them not to accept less than $5 a week.

SECTION 8: AS TO VOCATIONAL SCHOOLS.

(By Miss Hunter, Principal of the Girls' High School.)

Girls have not sufficient opportunity for getting vocational training in Montreal. Two things should be aimed at—(1) training the powers of judgment; (2) habits of accuracy. In Boston the Girls' Club gives them training for trades from 14 to 18, and helps them morally and physically under factory conditions, and when they go into the factories, they have their power of judgment strengthened. We do some work in the 5th and 6th year, but it does not keep them in school; 50% leave after 4th year, at 10 or 12; even at 14 a girl is not equipped to make a success of her life. Parents and teachers should co-operate in helping girls to choose an occupation—the State should provide for the 50% waste who leave the public school before completing the course. The girls hasten themselves out of school; they are eager to begin earning; they should be taught to see how bad it is for them to leave school so soon, but the schools also should manage to interest them. Trade schools are needed, and should be managed by those knowing factory conditions as well as more academic people. The Government should help; it is a Federal duty and opportunity.

SECTION 9: THE UNIVERSITY SETTLEMENT OF MONTREAL.

(By the Alumnae Society of McGill University and the Settlement Workers.)

The boys and girls in our clubs show lamentably the lack of early school training—a lack which has unfitted them to receive later the benefits of technical and special training. There are cases of Canadian girls of 16 who have received no education, being unable to read or write—who now eagerly grasp the belated opportunity of evening classes.

Girls of 14 to 16, compulsory wage-earners receiving wages averaging $4.00 weekly, would gladly take advantage of business college classes, were they fitted by early education to receive such training. Under present circumstances, they cannot hope for reasonable advancement. The same may be said of the boys, especially in regard to preparation for vocational work.

It would be futile to stand for the abolition of child labor if this means turning the children into the streets. It is pitiable to see children of school age wandering aimlessly around the streets in the absence, often, of both parents, who are at work. Most heartily do we believe in and would endorse any movement towards compulsory education.

All settlement experience thus far has shown us that which has been so tersely expressed by Dr. Eliot of Harvard. "If we are hoping to reform mankind, we must begin with the children, in the home, the school, the street and the playground."

These children frequently drift into our kindergarten with disorganizing effect upon the little children—are they to be turned away? Is the responsibility with the parents or with the city?

CHAPTER XLII: LA FEDERATION NATIONALE DE SAINT JEAN-BAPTISTE.

This French-Canadian Roman Catholic Women's Society works in 3 departments, viz:—Charitable, Social and Educational. This work is done by Special Committees and a Permanent Committee, composed generally of members of the Federation, but outsiders may be included for special duties. Conferences are held, at which papers are read on various aspects of women's work and interests, such as careers and professions for women, measures of assisting their development from the hygienic, moral and social point of view, the education of women and children and kindred subjects.

Women as Industrial Workers.

At the 1909 conference a paper was read on the proportion contributed by women of the industrial production of the country (by Mlle. M. Auclair, President of Manufacturing Employees) of which the following is a summary:—

Women's work is a question touching not only the individual interests of the worker, but those of the entire nation. The education of the young, the conservation of the race, and the moral and physical welfare of the people depend on the organization of women's work in the industries of the country. Woman has always worked—as witness the Greek goddesses and heroines, who are always represented as sewing, weaving, etc. For many centuries women's work appears as a specially domestic industry, and in the middle ages much beautiful work was produced. The workroom was an integral part of every nobleman's house, this being the forerunner of the factory of our own day. A German writer says the industrial position of women was spoiled by the corporations, which left them nothing but the arts of the home, and that ever since corporations came into existence, women have been more or less excluded from industry. This opinion, however, is not supported by facts, for corporations have a large share in the employment of women. In 1901, out of a total of 313,344 people engaged in wage-earning occupations in Canada, 61,220 were women, viz 27% of the number of men in wage-earning work and 14% of the number of men in professions. In 1905 there were 68,001 women in wage-earning occupations in the whole of Canada, as against 288,033 men; whilst in the professions there were 4,951 as against 31,545 men. These figures apply to manufacturing industries only, and do not include women in business, shops, teachers or domestics. The proportion of salaried women as against that of men is a little under one-seventh, whilst the proportion of wage-earning women is rather above one-quarter. Out of the 15,796 manufacturing establishments referred to, 650 employed men only; thus, deducting the products of these from the total manufacturing products of Canada, we get $661,750,600 as the product of factories employing both men and

women, which divided by 4, gives $165,437,650 as the product of women's work, out of a total of $718,352,603 produced in the country.

Domestic Servants

A Commission should be appointed, giving interests to all who are already working at the problem. Research should be made as to how immigrants could be taught here to be domestic servants. The chief difficulty lies in the fact that the girls depreciate service and find no dignity in it, and the mistresses give too much discredit to the occupation. A kind of self-respect takes them away from the career, and a change of name to "aide-menagère" helps to raise the dignity of the position.

Nurses.

The President of the St. Gustin Hospital states that a 3 years' course is given there, as well as in the General Hospital and the Hotel Dieu, and a 1 year maternity course at St. Gustin. The supply of nurses does not meet the demand.

St. Gustin's has a dispensary and distributes modified milk. The City Council gave $1,500 to start the movement, and $1,000 the following year, but the work is expensive and the demand great. The Government should help in this work, as it reduces infant mortality and improves the health of all children. Visitors are appointed to see that instructions are followed.

LES ECOLES MENAGERES PROVINCIALES.

Mme Beique, Montreal, writes:

This school of Domestic Science was established by the ladies' section of the St. Jean Baptiste Society; a committee of gentlemen agreed to see to the finances of the institution.

The aim was to give practical lessons on housekeeping in all its branches, and also to have a normal course of domestic science, so that teachers could be trained for the schools of the Province. Hence the name: Provincial School of Domestic Science.

Two young ladies were sent by the Committee to study in Europe. Miss Anctil graduated in Paris, France, and Fribourg, Switzerland. Miss Lajoie graduated in Fribourg, Switzerland. They afterwards visited other schools in France, Switzerland, Belgium and England, to study the different systems followed there, and report to the Committee.

A program was decided upon with the idea that a woman, whether she is rich or poor, ought to know everything about housekeeping, the care and rearing of children, and a good deal about sick nursing. With this end in view, the teachers gave day and evening lessons in cooking, sewing and cutting, laundry work and so on; and the public were admitted to the lessons given by nine doctors to the pupils of the normal course, on hygiene, care of children, care of the sick and injured, practical family medicine. Cooking lessons have been given to the young girls of different societies affiliated to the Federation St. Jean Baptiste.

A course of cooking for invalids will be given to the nurses of the Hotel Dieu Hospital, and probably later on to the nurses of the Notre Dame Hospital.

One of the teachers gave weekly lessons last year and this year to the pupils of a convent at Mile-End; the same room is used for a public evening lesson.

The Committee, besides the annual normal course for teachers, will try to establish the system called *système rapide* in France and Belgium, for the benefit of teachers having their diplomas in other branches of learning. A course of six weeks is given during the summer vacation; weekly lessons during the year, and a rehearsal during the vacation following, complete the course. The diplomas are granted after an examination by competent judges. During the summer of 1910 a course was thus given to eight teachers. This system would be useful to many teachers, if Domestic Science is added to the program in the primary schools.

The Committee beg to recommend that no teaching in Domestic Science should be given by incompetent persons. They also think that they are justified in thinking that this branch of learning is one of the best mediums of education against the dangers of alcoholism, tuberculosis and infantile mortality.

SESSIONAL PAPER No. 191d

CHAPTER XLIII: SUMMARY OF OTHER TESTIMONY AS TO WOMEN'S WORK AT MONTREAL.

SECTION 1: AS TO DOMESTIC SCIENCE AND ART.

The St. Jean Baptiste Federation (French) have been trying to establish Domestic Science in the schools since 1906, and have sent young women to Europe to study for 2 years. This Society gives a Normal course which is more advanced that the general public course. Their classes prepare for technical courses of various kinds, e.g. lessons on hygiene are useful for future nurses, washing and ironing for girls who intend to become laundresses, sewing and cutting out for dressmakers and seamstresses, etc.

Domestic Science should be taught in all elementary schools, and would be for the benefit of the country. The most important thing is to train teachers so that all children may get it. Vacation courses are recommended for this. It is important that teachers of Domestic Science should have a high idea of it, because women should have a high idea of the work which is to be their life-work. Girls should be taught how to buy as well as how to prepare food. The Federation is trying to train mothers and housekeepers, but the school for mothers is very poorly attended and not appreciated. Instruction should be begun when the girls are still at school.

Domestic Science is taught in the Technical School. Many nurses need it; 'they cannot cook an egg'. The girls like the work and take great interest in it. It is important to have one large centre, and small departments in all the schools.

Every teacher in all the schools should have special teaching in Domestic Science, and teachers in country schools should be able to teach hygiene, etc. If they had it in the public schools, very little training would be required in the Normal. Sewing should be taught by a different teacher to the one for cooking; 15 lessons in cooking and 10 to 15 in sewing in the first year is enough.

Miss Anctil was 1 year in Switzerland training for a teacher's course. She said that they also had training for domestic servants there. Previously she took a preparatory course in France for 6 months, and then studied for an examination. Domestic Science is compulsory for all girls and all teachers in Switzerland; it is not compulsory in France, but the Government took it up and have courses for teachers also. It has been compulsory in Switzerland for 15 or 20 years, and the results on the children have been most satisfactory; they take their leaving school diploma at 13. Domestic Science teaches them to reflect and think for themselves, and thus helps their general development.

Two Ladies Superior stated that Domestic Science had greatly helped girls in their Convent, and seemed to develop their intelligence, by making them reflect.

The Technical School has a very good equipment for Domestic Science; but care should be taken to have equipment such as girls are likely to have to work with, and not too elaborate.

Girls should have compulsory sewing and cutting in the Public School. Mme. Gagnon stated that the Dressmaking and Hat-making School has 534 pupils; its chief aim is to fit factory girls for better positions. The classes are chiefly held in the evening, but some pupils come in the day, there being 190 in the day and 185 at night, exclusive of the hat-making class. Classes are held 3 nights a week, 2 for sewing and 1 for hat-making. Some pupils take only one course, others take both. They learn to design patterns and cut material by them. They have a special drawing course to make the ornaments by linear drawing, so that they can adapt sizes; they learn to draw, design, cut, fit and sew. There are 15 pupils to one teacher, and Mme. Gagnon herself signs all drawings before they are cut. Girls find good positions; some in families at $2 a day and meals; others in general stores in the country, earning $12 a week and board, and some open hat-shops for themselves and do well. The average wages for hat-making in stores are $7 a week, but girls with taste can earn more. This school cannot accommodate all applicants. It has 7 courses in all; 2 dressmaking and 2 hat-making day courses, and 3 evening courses. Pupils come from all parts of Eastern Canada.

Miss Reid, head of the subscription department of the "Witness" office, is a graduate of McGill, and has found University education of great advantage to her. She would have liked more Domestic Science, and favors its introduction into the public schools, as it trains the judgment. What contributes most to efficiency is ability to distinguish the important from the unimportant, and Domestic Science teaches the exercise of judgment, close observation, and doing things without waste, all of which are important factors in education. Girls should be taught the duties and responsibilities of life, and made to feel that thoroughness and dependability are qualities which have a wage-earning value as well as a moral one; they can only learn the value of responsibility by taking it. This may be done in actual work after leaving school. One year in an office may be worth a year in college, but college training enables one to make the best use of the office training. Girls should stay at school longer; the short business course is very detrimental, as the girls are inadequately prepared and enter business before they are fitted for it.

Miss Hibbard, Supervisor of Primary Work under the Protestant Board, considers handwork (modelling, etc.) a fundamental subject in the public school. Other subjects can be taught in connection with it, and children make more progress in them, e.g. in reading. Manual Training enlarges their vocabulary.

SECTION 2: AS TO INDUSTRIAL OCCUPATIONS.

A witness from the Shoe Company said that operatives need industrial training to teach them the reasons for things, so that they would work better and need less supervision. At present foremen and superintendents have to be imported from the United States, but Canadians would be just as capable if they had the training.

This Company would be willing to adopt the half-time system to get apprentices to attend school. "There is nothing automatic in the shoe business; there has got to be brain combined with machinery." Co-operation between employers and instructors to avoid duplication of machinery is desirable.

Mlle Bouthillier, President of the Business Women's Association, wants opportunities provided for Technical Education. Girls can acquire the knowledge, but not the experience, before going into offices. There is a need for "formation offices." Evening schools afford great advantages, but not the experience, and without experience girls cannot get positions, except by taking low wages or none at all. As a rule they are well prepared except for the technical part of the work. Girls should be indentured, so as to ensure their learning their work thoroughly.

Miss Mary Desmond, of the Ames-Holden Shœ Company, said that girls go in at 15. Many of them are very uneducated, but get on just as well. They do one thing over and over until they acquire skill by practice. They work sometimes till 2 or 5 o'clock on Saturdays, and have no time to go to classes except in the evening.

Miss Marie Lomax, saleslady in John Murphy, Ltd., said she had no special training. Girls get short courses in selling in the shop. They start at $7 and may rise to $18 and $20. Girls help one another, and the firm is always willing to teach those who have aptitude. The hours are 8 to 5.30; Saturdays close at 1. All holidays are given, and overtime is paid for. The firm thinks that if the women are well treated, they will be better saleswomen.

ONTARIO.

CHAPTER XLIV: AS TO PROGRESS IN EDUCATION.

Information regarding the various branches of Education in Ontario, in respect to Industrial Training and Technical Education, was presented to the Commission by able educators in official positions. Their knowledge and views furnish an interpretation of the system as it is described in the official reports and is being worked out in various places; and their opinions indicate how Industrial Training and Technical Education might be further developed from and fitted in with the existing system.

SECTION 1: INFORMATION OBTAINED FROM Mr. ARTHUR H. U. COLQUHOUN.

Mr. Colquhoun is Deputy Minister of Education for the Province.

The Ontario system is, in its essence, that founded by the late Egerton Ryerson. The Elementary Schools are maintained, (1) by a system of local taxation in the section in which the school exists, in the townships and in some cases in the counties; (2) by grants from the Legislature.

Intermediate between the local taxation and the grants from the Legislature are grants from the County Councils for High School purposes. Statistics show a steady increase in the amounts derived from local taxation and also from Legislative grants. That is due partly to increased population and partly to public policy. Grants have considerably increased within the last five years. There is a very great interest in public education all over the Province.

Function of the Department of Education.

Under the School Law the Department of Education for the Province prescribes the courses of studies, leaving considerably latitude to the Boards of Trustees which control the schools. Professional training of teachers is exacted as a condition upon which the Legislative grant shall be earned, and the Minister of Education issues all the professional certificates to the teachers of the Province. The accommodation for training those teachers is quite adequate, but difficulty exists in keeping teachers in the profession and in the Province. During recent years there has been an increase in opportunities and facilities for training teachers, the number of Normal Schools (which are provided and maintained by the Prov-

ince) having been increased from 3 to 7. The recent Normal Schools are extremely well equipped for the teaching of Art and for courses in Manual Training and Domestic Science.

Supervision of Schools.

There is a system of official supervision of schools throughout the Province by means of inspectors. The schools within a County both rural and urban, are inspected by an officer appointed by the County Council and confirmed in his appointment by the Minister of Education. The larger urban municipalities appoint their own inspectors under the same conditions. They all have had pedagogical training and a certain experience in Public School and High School teaching.

The High Schools are under the control of local Boards, as are all the Elementary Schools. The High Schools are supported by the district in which they are situated and by grants from the County and the Legislature. They are inspected by inspectors from the Department of Education, and these are responsible to the Department. There is some room for options in the course of study in High Schools as well as in the Elementary Schools.

As to liberty to alter courses of study, the Elementary Schools are inspected by County officers, whose reports are presented to the County bodies, and who do not report to the Minister except on certain stated points which enable him to pay the grants. The exact condition as to any departure from the prescribed course would only be known to the Department if we asked for it, those officers being obliged to make reports to the Department on all points on which we want light.

Manual Training and Domestic Science.

There has been a steady increase during the past five years in the Departments of Manual Training and Domestic Science which are inspected by Mr. Leake, Technical Instruction Inspector. The number of schools reporting on those subjects, the extent of their courses, and the grants from the Legislative vote have all considerably increased. The Department gives special encouragement to those branches, and the grants for them are pretty generous, the policy of the Legislature being to encourage them and the desire being to lighten any load of taxation that might be felt by localities in starting those courses, so as to bring the activities of the school more into touch with the people and with home life.

The Department gives an annual grant sufficient to cover the total expenditure on a Manual Training equipment in five years. There is a grant for maintenance in addition to that.

There has been some discussion as to whether Manual Training and Domestic Science interfere with cultural studies or the general progress of pupils in acquiring information. In the Elementary Schools, the two courses are chiefly optional, and outside of the larger cities and towns, are not provided.

Revision of the Curriculum.

The Department has now before it the revision of the Public School course of study. The Prime Minister has announced that as some years had passed since the revision of the Public School course, it seemed advisable to consider whether any conditions had arisen which might lead to the modification of the course,—a question having come up as to how far the Public School course should be in subjection to the High School entrance examination.

Continuation Schools.

The Elementary Schools have in recent years been augmented by what we call Continuation Schools, which are quite different from schools under that name in England, ours being chiefly junior High Schools. They are intended to bring Secondary Education closer to the homes of people who have found it expensive to send their children to district towns. In the last six or seven years, there have sprung up more than 100 Continuation Schools all over the Province, some of these exceedingly well-equipped and well-taught. I think the fact of those Continuation Schools arising, was one reason why the question of revision of the course of study came up, so as to make them a permanent feature of our system. It is all in the interest of a more direct and comprehensive educational policy.

Special Grants for Technical Work.

The Department has been giving special grants for Manual Training, Domestic Science and Nature Study with a school garden. For special courses set up at certain places special grants have been given, e.g., to the Technical School in Hamilton—an excellent school in every respect, equipped in the most modern manner; to the High School at Sault Ste. Marie, where instruction is given related to the industries carried on there, also a large grant to the metallurgical department established at Sudbury in connection with the High School. These are special industrial experiments in High School education, and the Department has recognized their value, and given much larger grants than ever before in such cases.

The people at Sudbury and the Sault conform to all requirements of the Department in respect to High Schools, and in addition, by their own enterprise and interest and willingness to tax themselves, they have set up scientific and technical courses, which are specially adapted to the industries of their own locality.

It is open to the trustees of any High School in the Province to have a technical school. It has hitherto been encouraged by special grants from the Department. We give the schools at Hamilton and Sudbury each $5,000 a year, which is a much larger grant than we pay for any other single purpose throughout the Province, as they require a special building. All these schools I mentioned, are new school buildings, built with special reference to laboratory work.

Inspection for Efficiency.

These grants are given to local authorities on condition that they will do certain educational work up to standards set by the Department. Such grants

do not interfere with local control in any way. We have not prescribed a curriculum for those special classes because of their special relation to the industries near which they are situated, but we have an inspection by our Technical Instruction Inspector of all those newer schools to satisfy our Department that the work is of merit and is being well done.

Of course as long as the Legislature imposes conditions, and the locality accepts the grant on those conditions, there is what might be called interference to that extent, but no objection is taken to that. The schools of the Province are very willing to accept the conditions nuder which those grants are paid, and during the last five years there has been every reason to congratulate the people on meeting the conditions laid down by the Department.

Special Grants for Teachers.

Preference has been given on the teaching staff to men with special training on technical lines and for this particular purpose the Minister of Education has power under the School Law to recognize their certificates as adequate for that work.

In connection with the work of Normal Schools the Government gives some special assistance to teachers to qualify along industrial lines.

The Public School Law provides for instruction in Elementary Schools in Nature Study, Manual Training, Domestic Science and Agriculture. This law enables a township to levy a rate with which to pay a teacher who will instruct in agriculture in the schools of the township. The same power is also given to boards of High Schools and Continuation Schools. These courses of instruction call for a certain class of teacher, and we pay a grant to the School Board which retains one of those teachers with special qualification. We also pay grants to the School Board which maintains a School Garden in which elementary agricultural instruction is carried on.

Special Courses for Teachers.

In order to provide the teachers to carry on this work we offer free instruction at the Ontario Agricultural College to all teachers who having taken their course and second-class certificate at the Normal Schools, want to qualify and take a special course of three months in either Industrial Art or Agricultural and Horticultural Science. We have already granted over 200 certificates to teachers thus qualified. The purpose is to train those teachers towards industrial education and towards becoming competent to teach.

One of our greatest difficulties is to get specially qualified teachers and this is probably true of all the Provinces. It is one thing to propose a curriculum and give a grant to encourage teaching, but if you have not the qualified teachers it is next to impossible to make much progress; so the Minister adopted these means towards providing teachers with special qualification in those subjects.

Our High School teachers are trained academically in the Universities. Our courses for the first class certificates and for High School assistants are given by the University of Toronto and by Queen's University.

Scholarships for Teachers to attend Technical Colleges.

Mr. Colquhoun endorsed the suggestion of giving scholarships to teachers to attend a technical college in order to qualify for carrying on industrial or technical work in the common schools; because if the State did not intervene he did not see how the supply of specially qualified teachers could be got, especially teachers well trained professionally in those general subjects that form the basis of all good education. He saw no administrative difficulty whatever in the plan or any contravening of the established policy of the Province. His individual opinion was that if towns and cities like Hamilton and Toronto continued to provide Technical Schools it would be a plan of the Department to see that teachers were trained for those places. He failed to see how we could expect to get an adequate supply of teachers if we did not pay at least a portion of the cost of obtaining them. He thought it would be very undesirable to have to depend entirely on colleges outside of Canada for technical school teachers; and that one of the needs of any system of technical education would be some provision for training competent teachers for elementary and advanced work.

District Representatives of Agriculture.

The Department of Education has intimate relation with the special work done at some High Schools by the "District Representatives". Three years ago it was decided to set up agricultural training, both in schools and field work, in connection with the Secondary Schools in the Province. A course of study was prescribed, and short courses were arranged under the joint direction of the Departments of Education and Agriculture. The original experiments, six in number, were found to work very well. While the classes in the schools have not yet become large, the number of young men and adults who took the short courses has proved to be very large. There are now about 15 of those agricultural departments connected with High Schools in different parts of the Province from Essex to Glengarry.

The Department of Education votes to each of them the sum of $1,200. (which must go towards the salary of the teacher), and prescribes the qualifications of the teacher. He must be a graduate of the Ontario Agricultural College, holding the degree of B.S.A. from the University. These departments are further supported by County grants, prescribed by the Statute, and they are thus enabled to set up a complete equipment with a plot of ground for school garden and work that can be demonstrated there.

Interest in Agricultural and Industrial Training.

While the system is still in its infancy, and has only been brought to its present success by the cordial co-operation with the Department of Education, of Mr. C. C. James, Deputy Minister of Agriculture, and President Creelman of the Ontario Agricultural College, it has demonstrated a widespread interest in that form of technical education which may be called agricultural training. Ontario

being an agricultural Province began its technical education policy in connection with agriculture.

The developm nt of the School Garden for elementary schools Mr. Colquhoun considers the basis of the recognized training in agricultural science. It seemed to him that with properly qualified teachers, and with the grants that are being given, there would be enormous sympathy with and interest in scientific agriculture amongst the pupils, and in their school gardens they could illustrate such important subjects as rotation of crops, selection of seed, protection of crops from various injurious influences, etc., These are things our children have great interest in and their development fits into and falls in with the progress and policy of technical education in the Province.

Industrial training grants were increased from about $20,000 seven years ago to about $65,000 in 1910. Those advances have been expended not merely on Manual Training and Domestic Science, (which are considered to be culture subjects, and not properly part of technical education), but also on special schools set up by particular localities.

Dr. Seath's Investigation and Report.

In an effort to find out a plan which could be applied to the whole Province, the Minister last year sent the Superintendent of Education (Dr. Seath), to the United States, England and the Continent of Europe to enquire into all the later phases of technical education in those countries. Dr. Seath made a very thorough enquiry and his report would no doubt be of great service to the Legislature.

Co-operation with Federal Officials.

In a number of High Schools of the Province there are cadet corps, and grants are paid by the Provincial Government for those. The Dominion officials inspect them, without any resentment from local or Provincial officials because of that inspection by the Dominion government. It is not looked upon as an interference with Provincial rights in any sense of the term. Experience has shown that co-operation with Provincial or Federal officials is a very easy matter. The Federal Department of Indian Affairs co-operates with us, and our inspectors inspect the Indian Schools, the Federal department paying them for this special work; and if our inspectors have any suggestions to offer, the Dominion officials are always very glad to hear them. The Education Department moves along the line of improving the qualification of the teachers of Indian schools. In addition to the money necessary for providing technical education, and the teachers who must be put in the schools, the third and equally necessary condition is a vital interest taken by the public and people of the country; because it is impossible to force any system of education on the people who are not desirous of having it. He congratulated the Commission on having by its work already aroused great public interest in this subject all over Canada.

The subject of Elementary Agriculture is dealt with in the Chapters, "As to Agriculture" and "As to Agricultural Instruction in Public Schools".

SECTION 2: INDUSTRIAL, TECHNICAL AND ART EDUCATION.

Since 1910 much progress has been made in the development of Industrial Training and Technical Education in the various cities and towns.

Two important Acts have been passed by the Legislature of Ontario of which a synopsis is given in Bulletin 2 of the Department of Education. These Acts are:—The Industrial Education Act (1911) and The Adolescent School Attendance Act (1912).

The adoption of what is provided for in these Acts is still optional with each locality. Industrial classes under the former Act have been put into operation in a very considerable number of manufacturing centres. The latter Act has been adopted in London, to become effective in January, 1913. The provisions are so far-reaching that, in the opinion of Dr. Seath, it will take some years before the compulsory attendance principle is as generally adopted in Ontario as it is in Germany and some other Continental countries.

THE INDUSTRIAL EDUCATION ACT OF 1911

Definition of Names.

In *The Industrial Education Act* and the Regulations of the Department of Education, the name "Industrial" is applied to both day and evening schools and classes for the preparation of workmen and workwomen; and the name, "Technical" to those for the preparation of foremen and forewomen and the holders of minor directive positions in the trades. Manual Training and Household Science, hitherto designated Technical, are now classed as cultural and practical subjects of the High and Public School courses of study, whether they are taken up in day or evening classes. While introductory to Industrial and Technical courses, they are, however, neither Industrial not Technical themselves. The foregoing distinctions should be borne in mind.

(1.) CLASSES OF SCHOOLS.

At the session of the Legislature in 1911, *The Industrial Education Act* replaced all the preceding Acts which dealt with elementary Industrial, Technical and Art education; and this Act, it is important to remember, is the only one under which Industrial, Technical, and Art Schools can now be established and maintained at the public expense. Section 4 of the Act provides for the following classes of schools, which a High School Board or a Board of Education of any city, town, or village, or an Urban Continuation School Board may establish with the Minister's approval:

1. DAY SCHOOLS.

(1) *General Industrial Schools* for instruction in such subjects as may form a basal preparation (*a*) for the trades, and (*b*) for similar manual occupations which are not classed as trades; the courses, including workshop practice, with correlated

drawing, English, mathematics, and science, and continuing the essential subjects of a good general education.

(Such schools, elsewhere known also as Preparatory Trade Schools and Prevocational Schools, have been established at Brantford, Hamilton, London, and Toronto.)

(2) *Special Industrial Schools* providing for instruction in the theoretical and practical work of particular trades, and when deemed desirable, in the essential subjects of a good general education.

(Such schools, elsewhere known also as Trade Schools, have been established at Haileybury, Sudbury, and Toronto.)

(3) *Technical High Schools* and departments of High School for the training of duly admitted High School pupils for minor directive positions in industrial establishments, and for admission to the higher scientific schools.

(Such schools have been established at Haileybury, Hamilton, Sault Ste. Marie, Sudbury, and Toronto.)

(4) *Co-operative Industrial Classes* in which and under such conditions as may be agreed upon between the Board and the Employer; (*a*) apprentices, whether indentured or not, employed in the workshops, may receive in the day schools instruction bearing upon their trades; and (*b*) pupils attending the day school may receive practical instruction in the workshops. The former of these may be known as Factory Co-operative, and the latter as School Co-operative Industrial Classes.

(Such classes have been established at Sault Ste. Marie in connection with the technical classes of the Collegiate Institute, and at London in connection with the Day Industrial School. The former are Factory, and the latter School Co-operative Classes.)

(5) Schools for instruction in the Fine and Applied Arts.

(Such schools or departments have been established at Hamilton, London and Toronto.)

The Legislature also established at its last session the *Ontario College of Art* which, though under the direct management of a Council, prepares teachers of Art for the High and Public Schools in the Province, in addition to its other work in the Fine and Applied Arts. Although only a few months in operation, it is well attended and provides comprehensive courses. In 1912 it received a legislative grant of $3,000, and is provided by the Department of Education with free accommodation, heating, and caretaking. It receives also $1,000 in lieu of fees for those teachers, approved by the Minister, who attend its Spring and Summer classes.

II. EVENING SCHOOLS.

(6) *Industrial, Technical, and Art Schools,* in which workmen and workwomen employed during the day may receive in the evening theoretical and practical instruction in their trades.

(Such classes have been established at Berlin, Brockville, Collingwood, Galt, Guelph, Hamilton, London, Stratford, St. Thomas, and Toronto.)

Advisory Industrial Boards were also recently appointed at Cobourg, Oshawa, and Ottawa. Under them, evening classes will begin as soon as practicable.

At the recent municipal elections in Windsor, the ratepayers voted by a substantial majority in favor of establishing Technical Classes in the Collegiate Institute.

Advisory Industrial Committees.

Under this Act also the control of these schools is vested in an Advisory Industrial Committee, composed of twelve members; six members of the Board, and six others, not members of the Board, three of whom are employers and three employees, in connection with the manufacturing and other industries carried on in the locality; of such employees, at least one should be an operative. It is reasonably assumed that these representatives of employers and employees have an expert knowledge of industrial conditions. The powers of the committee are, however, exercised, subject in all cases to the approval of the Board, and, in certain cases, to the joint approval of the Board and the Minister.

The cultural Manual Training and Household Science classes, whether day or evening, are still under the sole control of the Public Board.

Constituted as they are on a plan similar to that of the Advisory Committees on the European Continent, our Advisory Industrial Committees have turned out to be eminently suited for the purpose. Since their establishment in 1911, more progress has been made in industrial and technical education in our schools than in all the years that preceded, and recent correspondence with the Department gives good ground for expecting that during the year 1913, a large number of other centres will provide evening classes at least.

Departmental Direction.

Dr. Merchant has been appointed Director of Technical and Industrial Education, and visits from time to time the industrial centres of the Province and assists School Boards in establishing and operating their local industrial and technical systems.

Applications to the Department for assistance and guidance in the establishment of industrial and technical classes will receive prompt and sympathetic attention.

To Bring About Qualifications for Admission.

Investigation of the conditions in Ontario has shown conclusively that at present extremely few Ontario workmen and workwomen have attended a High School. Most have entered the trades from Form IV of the Public Schools, having only partly completed the course; and some, indeed, enter from Form III, having reached fourteen, the age of exemption. It is, however, fair to assume that many of such pupils would attend longer if courses were provided leading to the trades and, especially, courses leading to more lucrative employment than they have hitherto been able to secure. In order, accordingly, that the nature of the provision may be understood by the pupils themselves, it would be well for the Public and Separate School Boards to authorize the Advisory Committee and the Principal of the Industrial of Technical School to bring the subject before the Fourth Forms of the locality.

Section 5 of the Act provides as follows:

(1) Subject to the Regulations and with the approval of the Advisory Industrial Committee, pupils may be admitted to a Day Special or General or Co-operative Industrial School by the Principal thereof from the Fouth Form of the Public or the Separate School, upon the recommendation of the Principal of such school.

(2) Pupils admitted to a Technical School or Department as defined above, shall have passed the High School Entrance examination.

(3) For the Industrial, Technical, and Art Evening Schools, no educational qualification is prescribed for admission. Workmen or workwomen employed during the day may be admitted, but no one should be allowed to attend classes for the work of which they are not prepared.

(2.) ESTABLISHMENT OF SCHOOLS.

In establishing Industrial, Technical, and Art Schools and Classes the Advisory Committee is usually confronted with three main difficulties:

1. *Indifference* on the part of those for whose benefit the schools and classes are intended. Notwithstanding the constitution of the Advisory Committee it is important that a general canvass and study be made of the local industrial situation. The Advisory Committee should, accordingly, confer with other employers and employees concerning the organization of the school. The sympathetic co-operation of all ranks of labor is essential to success, but on the employer in particular rests the chief responsibility. In other countries, where a compulsory attendance law is not in operation, he offers his employees inducements of various kinds to attend—a reduction, for example, of the hours of day labor, and, specially, increased wages and more rapid promotion. The experience of the last couple of years has shown that a similar course will be necessary in Ontario.

2. *The lack of competent teachers.* Each teacher must possess suitable expert knowledge of his subject. For the academic subjects the ordinary certificated teacher will suit, provided he has duly familiarized himself with industrial requirements; but, for the shop-work, foremen or forewomen, and for the theoretical and practical technical work, teachers specially trained at industrial or technical colleges are indispensable. (In Montreal, the shop instructors were appointed from the ranks of the mechanics after a competitive examination, a system of selection which has been carried on for years in Paris, France.) Not only will such teachers give, as, indeed, only they can give, the necessary practical turn to the work, but they will command the confidence and sympathy of the students.

Special difficulty will, however, be experienced in securing teachers for the elementary courses of the General Industrial Schools. To maintain the necessary correlation amongst the subjects, the teacher, when there is only one, should be conversant with the whole course, and where there are more than one, each should possess this qualification; for altough in the organisation he may be called upon to teach only part, to teach this part well he must known the whole. Few such teachers are as yet available in Ontario; but, as soon as practicable, courses

of instruction will be provided by the Department. For the Day Industrial School, the Manual Training and the Household Science teacher who holds at least a Second Class Certificate would suit after some training specially adapted to the school course of study.

While the Advisory Committee will take a general oversight of the organization of the classes, it is important that they should be under the charge of a principal teacher who possessess both executive ability and general mechanical knowledge. Such principal should have full control of the industrial courses, subject to the Advisory Committee.

3. *The difficulty of constructing courses of study* suitable to the requirements of the locality.

The needs of the different localities vary so much that any settlement of the details of the courses must be made by the local authorities. The Industrial Education Act, accordingly, leaves the initiatory steps to the Advisory Committee. After the subjects have been selected, the next step should be the submission of a report by the teacher in charge to the Advisory Committee upon the details, equipment, etc., followed by due consideration by the Committee and the Board, before submission to the Minister for his approval. The first year must, however, be more or less one of experiment, and the organisation should be modified from time to time in accordance with the experience of those concerned. For the same reason, the Minister will be prepared to approve of any modification of the regulations that, in his judgment, local conditions may justify.

For suggestions in constructing the courses recognized by *The Industrial Education Act*, all concerned should refer to the various systems and courses of study which for this purpose were included in the Superintendent's report on *Education for Industrial Purposes*, published in 1911, to the General Industrial courses and especially to the Technical and the Industrial courses, included in the Department's Bulletin No. 2, which are now in successful operation in different centres in the Province.

As soon as an industrial, technical, or art course is comprehensive enough, the Minister will be prepared to co-operate with the local authorities in awarding diplomas. A specimen copy of this diploma will be sent the Principal on application to the Deputy Minister of Education.

(3.) MUNICIPAL GRANTS AND DISTRIBUTION OF LEGISLATIVE GRANTS.

For Day and Evening schools, Section 11 of *The Industrial Education Act* provides that the cost of establishment and the cost of maintenance, in addition to the Legislative grants, shall be defrayed as is provided in sections 33-34 of the High Schools Act.

For some years the Legislature has made special grants of $5,000 each to a few of the High Schools for the promotion of industrial, technical, and art education, and, under the Manual Training and Household Science Regulations, a sum was distributed annually amongst a few High Schools which were specially

organized and equipped for giving instruction in the theory and practice of the Mechanical and Industrial Arts and Sciences, whether such instruction was given in day or evening classes. In 1911 the Legislature took another step in advance; it voted $20,000 for Evening Industrial Classes, and repeated the vote in 1912.

As the establishment of Day Industrial, Technical, and Art Schools will entail a large expenditure, and as there is ground for the expectation that, as it has already done munificently in the case of agriculture, the Dominion Government will recognize the claims of the industries by giving grants to the Provinces for industrial and technical education, the Ontario Government has delayed the settlement of a comprehensive scheme until the amount and terms of such grants are known. At its last session, however, the Ontario Legislature voted $25,000,as an initial grant, for the establishment and maintenance of Day Schools, with the result that, although only a few months have since elapsed, a number of efficient schools are already in successful operation, and a considerable number of others are at present in contemplation.

When the accommodations, the equipment, the text-books, the qualifications of the staff, and the courses of study are satisfactory to the Minister of Education, and when the Board is not in receipt of a special Legislative grant for Industrial, Technical, or Art Schools, the Legislative grant for Evening and Day Industrial, Technical, and Art Schools shall be distributed under Section 6 (*l*) of *The Department of Education Act*, in accordance with the following scheme. If, however, the amount voted by the Legislature is insufficient to pay in full the appointments under the scheme, or if there is a balance left over after payment in full, the Minister may make a *pro rata* reduction or increase.

I.—EVENING SCHOOLS.

(1) A grant on salaries, as follows: In cities with populations of 150,000 and over, one-third; in other cities, one-half; in towns, two thirds; and in villages, five-sixths, to a maximum of $3,000 in each case.

(2) An initial grant of 40 per cent. on new equipment, specially provided for Evening Industrial, Technical, and Art Schools, to a maximum of $1,000, and of 20 per cent. thereafter on the same equipment.

II. DAY SCHOOLS.

(1) A fixed grant of $250 for each Form established.

(2) A grant on salaries, to a maximum of $5,000, proportioned as follows on the total salaries of the staff:—

In cities with a population of 150,000 and over, one third; in other cities, one half; in towns, two thirds; and in villages, five sixths.

(3) An initial grant of 40 per cent. on new equipment specially provided for Day Industrial, Technical, and Art Schools, to a maximum of $2,000 and of 20 per cent. thereafter on the same equipment.

III. EVENING AND DAY SCHOOLS.

1. When the accommodations have been specially provided for Day or for Evening Industrial, Technical, or Art Schools, the sums apportionable under the following scheme shall be payable for each item in actual use.

2. When the accommodations for Day Classes are used also for Evening Classes or vice versa, or when accommodations provided for High, Public, Separate or Continuation Schools, or other purposes are used for Evening, Industrial, Technical, or Art Schools, one quarter of the sums apportionable under the following scheme shall be payable for each item in actual use for said classes, in addition to any other Legislative grants that may be payable on such accommodations.

(4.) REGULATIONS FOR EVENING SCHOOLS.

1. No Industrial, Technical, or Art Evening School shall be recognized by the Department of Education which has not an enrolment, satisfactory to the Minister, of members duly admitted and in regular attendance from the beginning to the end of each session.

2. Except with the special approval of the Minister, the Session shall begin not later than the first week in October, and shall close not earlier than the last week in March, on dates to be selected by the Advisory Industrial Committee.

3. The School shall be open for at least an hour and a half of actual instruction on each of at least two evenings a week.

4. (1) Each teacher shall possess expert knowledge of his subject. In the appointment of such experts, the preference shall be given to those who, being otherwise qualified, are now engaged or have recently been engaged in the form of industry which they are to teach.

(2) When day teachers are employed also in the Evening Industrial Schools, their work shall be so arranged that no teacher shall teach more than an average of six hours a day, except for reasons satisfactory to the Minister.

5. (1) As far as it may be suitable, the equipment already provided for the Science, Arts, Manual Training, Physical Culture, and Household Science courses of the High, Public, and Separate Schools and the Day Industrial, Technical, and Art Schools shall be used for the Evening Schools.

(2) Where no, or insufficient, equipment has been provided which is suitable for the Evening Schools, the Board shall provide from year to year such equipment for these schools as the Minister may deem necessary. The equipment thus provided shall, when needed, be used for the Day Schools also.

6. The organization, qualifications of the staff, accommodation, equipment, courses of study, and text-books shall be subject to the Minister's approval.

Courses of Study.

7. (1) From the following lists, the Advisory Committee shall make such selection as, in its judgment, suits the requirements and capabilities of the locality; but in addition to these subjects, any other subject or subjects having a direct application to any of the local industries may be taken up with the Minister's approval.

(2) From the following lists, I and II, for boys and men and for girls and women respectively, each student shall take up such subjects as he or she may select and as may be approved by the Principal. To the subject or subjects so selected, one or more of those included in the list III may be added.

(3) In localities where there are Evening Commercial Classes, the provision for the Special Industrial Commercial subjects may be made therein or in the classes maintained by the Advisory Industrial Committee, as the latter may consider more convenient and economical.

I. SUBJECTS FOR BOYS AND MEN.

Freehand drawing, mechanical drawing, architectural drawing, design, modelling.

Woodworking, metal working, electrical working, building construction, printing, plumbing.

Physics, chemistry, mechanics.

Workshop mathematics, estimating, business English, industrial commercial work.

II. SUBJECTS FOR GIRLS AND WOMEN.

Cookery, home economics.

First aid, home nursing.

Hand sewing, machine sewing, dressmaking, millinery, embroidery, laundry work.

Freehand drawing, design, colour harmony.

Business English, industrial commercial work, mathematics.

III. ADDITIONAL SUBJECTS.

English literature, history and civics, physiology and hygiene, physical culture, first aid.

(5) REGULATIONS FOR DAY SCHOOLS.

1. No Day Industrial, Technical, or Art School shall be recognized by the Department of Education which has not an enrolment, satisfactory to the Minister, of members duly admitted and in regular attendance from the beginning to the end of each session.

2. Except with the special approval of the Minister, the limits of the school terms shall be the same as those of the High Schools.

3. The hours of opening and closing the daily session and the recesses shall be the same as those of the High Schools; but where practical work is emphasized in the program, the hour for closing may be extended by the Advisory Committee to five o'clock.

4. Each teacher shall possess expert knowledge of his subject. In the appointment of such experts, the preference shall be given to those who, being otherwise qualified, are now engaged or have recently been engaged in the form of industry which they are to teach.

5. Where no, or insufficient, equipment has been provided which is suitable for Day Industrial, Technical, or Art Schools, the Board shall provide from year to year such equipment for these schools as the Minister may deem necessary. The equipment thus provided shall, when needed, be used for the Evening Schools also.

6. The organization, qualifications of the staff, accommodations, equipment, courses of study, and text-books shall be subject to the Minister's approval.

(6) COURSES OF STUDY FOR GENERAL INDUSTRIAL SCHOOLS

One matter it is important to bear in mind in the construction of the General Industrial Courses. While largely vocational, they should also include the essential cultural work in Literature, Reading, History, Geography, Grammar, and Composition in particular. This Province needs well-trained workmen and work-women, but it needs also well trained citizens.

The following courses are intended to be merely suggestive; they are not prescribed. For most centres, except probably the largest, they may be found too comprehensive and too intensive for some years at any rate; but, with the Minister's approval, the number and scope of the subjects in each year may be reduced and the practical work of the courses may be emphasized, having regard in all cases to the capabilities and requirements of the pupils. It must be remembered, however, that no course should be established that does not make provision for the continuation of the cultural side of education, as well as the special provision for industrial work. This is especially necessary where pupils are admitted before completing the work of Form IV of the Public and Separate Schools.

The course for boys should extend over at least two years. It may extend over less time if local conditions so demand, but the longer period is greatly to be desired. Moreover, if properly conducted, this General Course should develop an interest in industrial subjects, and should on its completion, enable the student to select, with the assistance of his parents and the teacher, the industry for which he is best suited. When practicable and desirable, specialization might be permitted in the shop work at the end of the first year in accordance with the requirements of each locality; or the shop work in wood might be continued, with or without metal work, as being the best basal preparation for most of the trades. By means either of Special Industrial Schools, or, preferably because more economical, of Co-operative Part-time schools, the boy's industrial education might be continued for a couple of years longer—to a stage where what he needs to become an expert workman is chiefly longer practice and experience. Where at all possible, Boards should establish a four years' course for boys—two of the General Industrial School and two of the Special or the Co-operative School. The establishment of the General Industrial School would attract and retain the student from thirteen or fourteen till sixteen, the period when his growing power is greatest and his earning power is least; but only a four years' course can produce the mental and physical training needed for a life of progression in industrial efficiency. Owing to the less exacting nature of their trades, probably a year or so of a General Industrial course, followed by one or two years of a Special Industrial course,

will be found to be sufficient for girls, especially where Household Science forms part of their Public School course. Owing also to the practical character of much of the courses for both boys and girls, and the future claims upon them, the school day might reasonably be prolonged to five o'clock. It should be borne in mind also that, of the following courses, some need not extend over the whole year.

The Courses of Study, which are detailed in full in Bulletin No. 2 of the Ontario Department of Education, are here given merely in outline showing their main features.

I.—General Industrial Schools for Boys.

First Year.

Mathematics, Elementary Science, Drawing, Shopwork, English, History and Civics, Geography, Penmanship, Physical Culture, Manners and Morals.

Second Year.

Mathematics, Elementary Science, Drawing, Shop Work, Materials, English, History and Geography, Bookkeeping, Business Forms, Physical Culture, Manners and Morals.

II.—General Industrial Schools for Girls.

First Year.

Household Science, Mathematics, Mensuration, English, History and Civics, Geography, Drawing, Penmanship, Physical Culture, Manners and Morals.

Second Year.

Household Science, Artistic Work, Elementary Science, Freehand Drawing and Design, English, Bookkeeping and Business Forms, Physical Culture, Manners and Morals.

SECTION 3: INFORMATION OBTAINED FROM Mr. A. H. LEAKE.

Mr. A. H. Leake, Inspector of Technical Instruction, appeared before the Commission in Ottawa in 1911, and gave us a statement as to the conditions and equipment at that time in reference to schools of secondary grade as well as public schools, with particular reference to Manual Training, Domestic Science and Nature Study with school gardens.

Household Science.

(*Some sewing, but chiefly cookery.*)

Public Schools only: Brockville, North Bay, Ottawa, Toronto.

High Schools and Collegiate Institutes only: London, Stratford.

Public and High Schools and Collegiate Institutes: Belleville, Brantford, Galt, Guelph (3), Hamilton (5), Ingersoll, Kingston, Peterborough (2), Sault Ste. Marie, Thorold, Woodstock.

Public and Separate Schools and Collegiates: Berlin, Own Sound, Renfrew, Stratford.

Manual Training.

(Those marked * have also metal-working equipments.)

Public Schools only: Brockville, Cornwall, Guelph (3), London (4), North Bay, Ottawa (4), Rittenhouse. Toronto (8).

Collegiate Institutes only: *Kingston.

Public and High Schools and Collegiate Institutes: *Brantford (2), Galt, *Hamilton (4), Ingersoll, Peterborough (2), Port Arthur, *Sault Ste. Marie, Stratford, *Woodstock.

Public and Separate Schools and Collegiate Institutes: *Berlin, Collingwood, *Owen Sound, St. Thomas, *Stratford.

The ordinary Manual Training room as equipped for wood-work, has 20 to 25 benches and the necessary tools. From 1½ to 2 hours per week are given to the work, including work taken up in Mechanical Drawing.

Eight Secondary Schools, in addition to the usual Manual Training equipment, have wood-working and metal-working, lathes, forges, drills and shapers.

The Ontario Agricultural College at Guelph, Ont., has a Manual Training Department with three distinctive courses, viz., (1) a course for agricultural students in wood-working and metal-working and farm mechanics; (2) a Normal course for the training of instructors in Manual Training, open to teachers holding permanent certificates from the Department of Education; (3) optional courses in wood carving, art metal, etc.

TECHNICAL SCHOOLS.

Hamilton.

A Technical and Art School was opened in 1909, the cost of building and equipment being $100,000. It has Departments as follows:—Wood-working Machine-shop, Forging, Electrical work, Household Science, Drafting, Printing, Fine Art. With the exception of 2, the teachers of the staff have had practical experience in industrial work. (The Art Department occupies the whole of the third floor of the building.) High School Entrance is necessary except for pupils of 14 where certain conditions are complied with. Science and English are given by members of the Collegiate Staff. The two institutions are in one building, although each has its separate area. A large number of the Collegiate Institute

pupils and the advanced classes of the Public Schools receive instruction in wood-working, metal-working, cookery, sewing, and free-hand drawing.

Sault Ste. Marie.

Connection has been established by the School Authorities with the local industries, and in particular with the Algoma Iron Works.. Apprentices attend school one afternoon each week for instruction in drawing, English, and mathematics, and such time is paid for on the same basis as shop work by the employers.

Sudbury.

The High School has a Mining Department under a technically trained graduate of the University. The Courses at present are,—(1) 4 year's course for High School pupils; (2) Short Course for men engaged in the Mining industries, in three classes, Prospectors, Miners and Smeltermen. The school has three laboratories, Chemistry, Physics and Assaying; all are specially equipped for the work.

Toronto.

DAY SCHOOL.

For regular classes High School Entrance qualification is required. Special students are received on application, subject to certain conditions.

The courses for day classes are: (1) Business, (2) Matriculation (Science), (3) General Scientific, (4) Art, (5) Home Economics, (6) Special. This school has no shop work and no Manual Training. Some teachers are engaged for only part of the day and all at night.

EVENING CLASSES.

Regular courses: Mathematics, Applied Mechanics, Chemistry, Architecture, and Building, Electricity, some Engineering, Mechanical and Free-hand Drawing and Design, Modelling in Clay, Wood Carving, Estimating Cost of Buildings, Cookery, Home Nursing, Sewing, Millinery and Embroidery.

The Staff consists of the Principal, 7 Directors and 41 Instructors of whom 23 teach Evening Classes, only 6 give full time in Day Classes, and the others part time in both. Some of the Teachers of the Evening Classes are engaged in industrial occupations during the day.

Woodstock.

Woodstock College was the first to introduce Manual Training. It is equipped for work in wood and in metal. The course is an optional one; about half of the students take it and devote 5 or 6 hours per week to the work.

RECOMMENDATIONS BY INSPECTOR LEAKE.

In Bulletin No. 2, the general situation in Ontario is reviewed by Mr. Leake, whose remarks we quote in full:—

The movement in favor of Industrial Education has made gratifying progress since the passing of *The Industrial Education Act*, (1911). It is now generally recognized that the time for mere academic discussion has passed and that definite plans and organization are required. Whatever hints and suggestions we may get from other countries the problem will remain peculiarly our own. It will not do to copy; we should only adapt. Each locality has its own problems and these must be solved strictly according to local requirements.

The efforts put forth so far have been mainly in the direction of Evening Classes; they seem to offer the line of least resistance. Outside of Brantford, Hamilton, London, and Toronto, nothing however, has been done in the direction of real industrial day classes.

There seems to be unfortunately an indifference, if not an antipathy, to any form of instruction which is calculated to fit directly for work in the shop or at the bench. This indifference must be overcome before parents will be willing to place their boys in such schools. They must be shown the money value of industrial training.

A large portion of the attendance at the present Evening Classes consist of mature men and women, in many cases fathers and mothers. After a session or two of such classes they will, no doubt, learn that the instruction given is worth while, and will in the future be willing to make the sacrifice necessary to allow their children to attend Day Classes.

Process of Establishment.

The first step in the establishment of industrial classes is the formation of an Advisory Industrial Committee. The members should be selected with considerable care, as much of the success depends upon the efforts put forth by this Committee. It should be as representative as possible of the different industries of the locality. The meetings should be held at stated times, at least monthly, at the school and not in an office down town. All the members should be workers, and should not regard their duties as confined to attending the meetings. They should visit the school regularly, inspect the registers, and take an interest in the work generally. The members can do effective work among the people by advocating on every possible occasion the training given by the school. Where there are likely to be large classes of girls and women it is advisable to appoint at least one woman on the Committee. Where there is a Public School Board it often facilitates matters if one of the elected members of the Committee is chosen from that body.

Publicity.

The school should be well but judiciously advertised. Posters in the factories and elsewhere, the former being provided with a space for the endorsation of the firm, the distribution of circulars to factory employees and artisans, provided

with a detachable application blank, are some of the means that may be adopted. The fullest use should be made of the local newspapers.

The classes should be brought closely to the attention of all boys and girls in forms III and IV of the Public and Separate Schools who do not intend to enter the High Schools. The school should be opened some days before actual class work begins, and an announcement made that the Principal and his staff are ready to advise intending students and their parents as to the course of study best suited to the individual.

Organization and Management.

Every school should have a Principal to take general oversight of the organization, curriculum, etc. In very large schools he should have no class directly under his charge, but in the smaller ones he may perhaps teach half his time. The appointment of such a Principal is all the more necessary when it is considered that the majority of the teachers will be practical men and women from the shops, with little or no experience in teaching and in solving the problems of the class-room.

The Principal should keep in close touch with the factories and other industries in order that the instruction may be kept up to date, and that he may know the type of man required and be able to advise both employer and employee in their choice. He should report monthly to the Committee. His report should show for each subject, the number registered, the number in attendance each night, the average attendance and the percentage of the registered attendance. The registers should be kept and marked in ink. They should show for each student the name, address, occupation, and previous training.

Where fees are charged the Principal should be instructed to remit them, if, in his judgment, the financial condition of the student or his parents renders it advisable to do so. This will of course be done privately. Every effort should be made to keep up the attendance. The cause of absence or discontinuance should, in every case, be sought for. In some schools reply post cards are sent, but a much better plan is personal inquiry by the teachers or members of the Committee. The names of persistent absentees who cannot satisfactorily account for their absence should not be retained on the register. The Day School authorities should provide the Principal of the Evening School with a record of every boy and girl showing character, ability, attainments, etc.

After the organization of the Committee and the appointment of the Principal a general investigation should be undertaken of the industries of the district, with the object of discovering the subjects most desirable and feasible, and the kind of instruction required by the employer and needed by the employee. At the same time the employer should be urged to show a practical, not merely an academic, interest in the industrial classes, by granting certain privileges, bonuses, increases of wages, or promotion to employees taking a satisfactory course of instruction.

Every effort should be made to induce students to take up related courses of study rather than isolated subjects; the diploma courses of Hamilton, London, and Toronto afford good examples of suitable courses. Classes should be small.

No class should exceed 20, and 15 is a better number. No matter what system of classification is adopted, much of the instruction must be individual. In this work particularly, the more the individuality of the pupil is recognized and the more his special requirements are taken into consideration, the more regular will be his attendance and the more satisfactory will be the result. Many of the present classes, particularly those for women and girls, and for mechanical drawing, are much too large.

Students should be classified according to qualifications, age, and occupation. In some of the present classes the ages vary from 14 to 50 and in one school 43 different trades are represented. No man of 30 or over cares to show his lack of knowledge or training before boys of 14 or 16. The drawing and mathematics (beyond the rudiments) required by the carpenter are different from those required by the machinist.

At first it will probably be found that all require the same preliminary instruction, but after the first year differentiation will probably be necessary. No student should be admitted to a class who, from want of sufficient preliminary training or other cause, is unable to take full advantage of the instruction given. The methods of approaching subjects in the evening voluntary classes should differ materially from those employed in the day schools. In the former, students have been discouraged and have discontinued their attendance owing to the fact that they could not see the bearing of the instruction on their daily work, or that the instruction was not suited to their needs. In mechanical drawing, mathematics, and science, for instance, they have been kept working at preliminary plates, exercises, and problems which with their limited knowledge they could not recognize as being of practical value.

Work in all subjects should begin with shop problems of immediate use. After the student is convinced of the applicability of the instruction to his daily labor he will be quite willing and anxious to take up, if necessary, the elementary work on which these problems are based. Drawing should be taught more generally from specifications than from plans and plates which require only copying to the same or a different scale.

The teacher should prepare a summary of each lesson, this summary, in the form of typewritten sheets or cards to be handed to the student at the close of the lesson. This method enables students who are unavoidably absent to keep up the continuity of the work and gives all an opportunity of review before the commencement of another session.

Teachers of the academic subjects and others who are not actually engaged in the trades should make themselves acquainted with the needs of their students. This applies particularly to drawing, mathematics, English, and science. In order to enable such teachers to do this they should be appointed before the summer vacation, part of which they can utilize for this purpose in the factories and at special schools. The attendance at the classes is seriously affected when the exact instruction required is not given.

In the case of schools already established, second year classes should be provided for those who took the course the year before. First and second year students should not be taken together and no attempt should be made to take pupils over work a second time except in so far as a preliminary review is necessary.

At the close of the session the plans for the next year should be outlined to the students, and they should be asked to register for the subjects they intend to take up the following session. The students should not be lost sight of during the summer. One night a week might be devoted to interviews with those who require help or direction in their reading. A working arrangement between the Public Library and the school might also be carried out to the manifest advantage of both. Nor should the social side be overlooked. A concert, or a popular lecture or two, during the session will do much to develop a school spirit and introduce the students to each other. Last year the Stratford school closed its winter session with a banquet prepared by the Household Science Classes, after which the certificates earned were distributed.

The day school accommodations and equipment are provided at the public cost, and should be used as far as possible for evening school students. When the school possesses a gymnasium it should be thrown open to the evening school pupils. No student should be admitted to this who is not taking an approved course in the school. The work should, of course, be done under proper supervision.

SECTION 4: LATER DEVELOPMENTS IN ONTARIO.

"Bulletin No. 2, 1912," of the Ontario Department of Education gives very full details (with many illustrations) of the progress and present position of Industrial Training and Technical Education in Toronto, Hamilton, London, Brantford, Berlin, Brockville, Collingwood, Galt, Guelph, Stratford, St. Thomas, Sault Ste. Marie, Sudbury and Haileybury.

It has been thought that a summary of points relating to a representative one of these institutions would indicate the general line on which all are conducted, differences of course existing to suit local conditions. The Technical High School at Toronto, by reason of its size and scope, is in a class by itself. Full details of its courses, etc., may be obtained on application to the Principal.

(1.) INDUSTRIAL, TECHNICAL, AND ART SCHOOL, HAMILTON.

This School was opened in 1909. The building is connected with that of the Collegiate Institute, and cost, with equipment, about $100,000.

The whole building is specially fitted up for industrial work. In the basement are the forging department and the electrical laboratory; on the first floor the woodwork shop, machine shop and class-rooms; on the second floor, the household science department, drafting room, printing department, and class-rooms; while the whole of the third floor is devoted to the art department. The accommodations meet all requirements for day and evening classes. The enrolment in 1912 was 340.

Equipment and Value.

The Wood Shop contains 24 benches furnished with vises and sets of the smaller tools used in the commoner operations of carpentry, cabinet-making, and pattern-making, and also 7 wood-turning lathes with smaller tools for wood turning, one rip and cross-cut power saw, 1 30-in, band saw, 1 buzz planer and 1 power grindstone.

The Forge Shop is equipped with benches fitted with blacksmith's vises, 16 Sheldon down-draft forges with blast and exhaust systems, and a full complement of anvils and small tools.

The Machine Shop is equipped with benches furnished with vises and individual sets of tools, and the following machine tools: 1 high speed and 6 engine lathes of from 11 to 16 inches swing; 1 24-in. x 24-in. x 6-ft. planer; 1 16-in. back-geared shaper; 1 20-in. drill press with hand and power feed; 1 power hack saw; 1 grinder and 1 milling machine.

The Electrical Laboratory is equipped with a full line of apparatus for experiments in elementary electricity and magnetism, and with the following generators and motors: 1 motor-generator set, including a 5 H.P. 220 volt, 66 2-3 cycle, 2 phase induction motor, direct connected to a 5½ k. w., 125 volt, compound, direct current generator; 1 5 H.P. 110 volt, 66 2-3 cycle, single phase induction motor, with auto starter; 1 2 H.P. 125 volt, variable speed direct current motor, with rheostat; 1 3 k. w. double current generator, supplying either direct current or 2 phase alternating current, with rheostats; 1 2 H.P. 66 2-3 cycle, 110 volt, single phase induction motor, with auto starter. Ammeters, volt-meters, transformers, etc., for use with the above.

The Mechanical Drawing room is furnished with fifty drawing tables and the necessary black-boards, T, and set squares. The students provide their own instruments.

The Household Science Department is equipped with tables, stoves, and utensils to accommodate 24 pupils at one time. Dressmaking and Whitewear have a large room devoted to them, with all the necessary tables, sewing-machines, irons, mirrors, and fitting stands. A part of this room is screened off by cabinets and used as a fitting room. Millinery is taught in a separate room, with all the necessary equipment.

The Art Department has, in addition to the equipment of the old Hamilton Art School, everything required to successfully carry out its course of study.

The cost of the above equipment is as follows:—

Wood Shop	$2,891 36	
Machine Shop	2,990 92	
Forge Shop	2,077 65	
Electrical Laboratory	1,977 85	
Drafting Room	1,240 00	
Printing Room	702 96	
Sewing Room	564 41	
Millinery Room	50 20	
Office	120 00	
General Expenses (lockers, etc.)	873 00	
		$13,488 35
Art Department (estimated)	$1,500 00	
Cookery Room (estimated)	800 00	
		2,300 00
		$15,788 35

Day Courses.

For Boys.

The complete course covers three years. In the first year, pupils entering the school from the Fourth Form of the Public or the Separate School, or with High School Entrance standing, are required to take all the subjects prescribed. In the second and third years the book studies and drawing are obligatory, but specialization in shop work is allowed within limits determined by the Principal in each individual case. Pupils entering with higher standing than High School Entrance are treated as Special Pupils, and may be excused from some of the classes at the discretion of the Principal.

The program is designed to enable the pupils to make all ordinary workshop calculations, to understand the mathematics and the leading scientific principles underlying the construction and operation of machinery, to make workshop drawings and read blue prints, to manipulate tools and apparatus, and to acquaint themselves with materials and processes of construction.

The course covers English, Arithmetic, Algebra, Trigonometry, Physics, Freehand or Geometrical Drawing, Projections, Woodworking, Forging, Machine Shop Practice, Electricity.

For Girls and Women. (Special)

Cookery (one period of 1½ hours per week); sewing and dressmaking (three periods of 1½ hours each per week).

Evening Courses.

All subjects are taught three evenings a week, two hours each evening, with the exception of china painting (two evenings) and mathematics (one evening).

Diplomas are awarded to pupils who complete any one of the following courses satisfactorily. Written examinations are held in most of the subjects at the end of the school year. The time required for each diploma course is approximately three evenings per week for two years. The Committee reserves the right to cancel any class in which fewer than 10 pupils are in regular attendance.

The following subjects are taught:—Architectural, Geometrical, and Freehand Drawing, Electricity, Forging, Machine Shop Practice, Woodworking, Building Construction, Mathematics, Household Science, Cookery, Sewing and Dressmaking, Millinery.

Art Department.

Day Courses:—The following classes are offered:—

Drawing from the cast; water-color painting, (still life, landscape, and figure); oil painting, (still life, landscape and figure); illustration, in all mediums, including pen drawing; clay modelling; arts and crafts; tone drawing in charcoal; pastel painting; wood carving; china painting; pencil sketching from nature; perspective, elementary and advanced; composition and design, elementary and advanced; art history, (assigned reading only).

The above work requires from two to four years. Pupils undecided as to what special branch of art work they will devote themselves are recommended to take as much of the above as possible before specializing.

Evening Courses in freehand drawing (charcoal, pencil and crayon), industrial design, modelling, china painting.

Saturday Morning Courses.—These classes are designed to meet the requirements of Public and Separate School pupils and teachers. Hours 9.30 to 12 o'clock.

Courses offered:—Freehand drawing, as above; painting in water-color and pastel; elementary design.

Items of Interest.

In common with other schools of this type the evening attendance largely exceeds the day attendance, and this condition is likely to persist, although probably the ratio will diminish as the advantage of the more comprehensive day course becomes better known. Undoubtedly there is considerable prejudice against manual employment, and many parents who are in a position to send their sons to school from, say, fourteen to sixteen years of age prefer to educate them for what is familiarly known as a "clean shirt job." So urgent is the demand for labor in these prosperous times that the boys themselves are tempted to leave school by the prospect of immediate earnings. From time to time, too, employers send requests for pupils.

With a relatively small day attendance arises a problem in organization —that of procuring employment for the teachers throughout the whole day. This has been solved by admitting Collegiate Institute and Public School Commercial classes for Manual Training, Household Science, and Art.

It is pleasant to record instances of the marked success of the pupils. One lad of nineteen, who spent a year in the day classes and another year in the evening classes, is now earning $18 per week as foreman in the Ontario Lamp & Lantern Company. A younger boy, who has just completed his three years' day course, this summer received an appointment in the physics laboratory of the meteorological department, Toronto, at an initial salary of $600 per annum, with prospects of a substantial increase.

(2). HOW TECHNICAL EDUCATION GROWS AND DEVELOPS.

St. Thomas, the "Railway City", affords an illustration of development on lines of Industrial Training and Technical Education. When the Commission visited St. Thomas in the fall of 1910 there were no night schools in that city, though from 800 to 1,000 men were employed in railway work. But Manual Training (the forerunner of technical training) had been planted in the schools, and the plant has been growing.

The investigation held by the Commission with open doors, when representative citizens were asked their views, excited discussion through the press and in public bodies such as the Board of Education, and in 1912-13 St. Thomas had

a flourishing Evening Industrial School with a registration of 250, almost exactly divided between the sexes.

In view of the preceding statement and also of what follows in the way of illustrative literature from St. Thomas, the following brief resumé of the evidence given before the Commission by the Chairman of the School Board (Mr. Albert Roberts) may be of interest:—

Mr. Roberts stated that the School Board compelled all children under 14 years of age to attend school. There was scarcely enough room at present, but immediate provision was being made for two extra class rooms.

St. Thomas has for three or four years had Manual Training, beginning at the senior third grade of the public school and also for Collegiate Institute, with one teacher for the city. The people thoroughly approve of it and would like to give children more training along that line, extending it to iron working. No provision is made for girls. No sewing is taught in the schools except by some individual teachers who take upon themselves to teach a little. There was a little experimental garden that summer at one of the schools. About one-half of the boys stop schooling when they reach the third book; this arises mostly from lack of interest. The children who take Manual Training become intensely interested in their work. If more of that kind of training was provided it would attract them to stay in school longer, and they would make more progress in their work.

Mr. Roberts was of opinion that a large part of literary education should be based upon the pupils' work; that grammar should be taught them from expressions upon their work in their essays; that a large part of their arithmetic should be taught on problems concerning their work in which they are vitally interested, instead of abstract studies which are not interesting to the child. It would make arithmetic and reading connect with things that the child had done; give him a chance to do those things in school and a chance to express his thought better. This would uplift education, and tend to the development of rational intelligence instead of abnormal memory. The present method seemed to him to constitute a drain on human intelligence rather than an aid to it. What he had said regarding the Public School applied even more to the Collegiate Institute.

He thought that more of those boys would go on through High School work if there was a school of the grade of the Collegiate with half the time given to bodily activities, hand-and-eye training, industrial and technical work and all those things. He believed that one-half of the time devoted to putting their thoughts into actions through labor and the other half to literary training would give nearly as good a literary education, and a mechanical education as well. Such a course would form a basis of industrial training to a fellow who had afterwards to go into a factory. It would broaden and develop his intelligence and make him more productive. A fellow like that would be more apt to go to night school.

If a Night School were opened for advanced work in Manual Training those fellows who left the Public School would go there for training; and similar work in the High School might induce those who left it for occupations to go to night

classes too. There used to be a Mechanics' Institute here years ago, the night classes then being attended by the mechanics.

A boy at Manual Training will go on with his work quite as well if the teacher is absent as present, but you cannot say that in an ordinary class-room. That is evidence of educational value, showing that Manual Training develops self-control.

If in addition to the general education spoken of, any provision were made in St. Thomas for what is known as industrial education for those who are working, and also technical education for those who are working or preparing to work, he thought the School Board would be willing and desirous of making the ordinary school system fit in with that, and help it, if they were once aroused to the necessity and expediency of such a course. He believed that would be a good thing for the people who live in St. Thomas; and that as a first step towards it the Board of Education should establish night classes in mechanical drawing and that sort of thing, to help those who work in the day now.

We are actually in need of industrial and technical training; Manual Training is not extended far enough; the boys should have more time than they get now; one school and one teacher to serve this whole constituency is not enough. The girls should also have some training in Domestic Science and sewing, and how to keep a home. This would be money well spent. The great trouble seems to be the lack of funds; not that the funds are not available, but the trustees are not enough convinced to raise the necessary funds.

Any effort in the development of Manual Training in the Public School, and that training as more adequately expressed in High School and technical colleges, would be the proper step at the present time, for the reason that the evolution of industry and machinery has destroyed handicrafts, and has brought to the State the problem that the child must be taught to make a living. Machine operators develop into monotony, and lack of opportunity for change has a tendency to wear out life for want of variety; hence it will be necessary to provide some substitute that will give that necessary development which a man used to get through skilful labor, or man will deteriorate.

SECTION 3: METHODS OF ADVERTISEMENT AT ST. THOMAS.

As illustrating the methods adopted for advertising evening classes, and also showing how employers co-operate in this class of education, the following specimens, issued by the St. Thomas Industrial and Commercial School, are reproduced:

SESSIONAL PAPER No. 191d

(CARD OF APPLICATION.—This card is already addressed to the Principal. The applicant has only to fill in, stamp, and mail it.)

ST. THOMAS INDUSTRIAL AND COMMERCIAL SCHOOL APPLICATION FORM—EVENING CLASSES.

Name in full.....Date.....
Address.....Age at Last Birthday.....
Occupation.....Name of Employer.....
Name of foreman under whom you work .....
The form you were in when you left school.....
The subject you desire to take (1) .....
(2) .....(3) .....
Special purpose, if any, in taking the course.....
Remarks.....

.....

Signature of Applicant

NOTE.—It is important that every applicant should call and see the Principal as soon as possible after making application to arrange the subjects to be taken, as only certain combinations of subjects are possible. The Principal, Dr. Voaden, will be in the City Hall on October 9th, 10th and 11th, from 7.30 to 9.30 each evening, and will be pleased to give information and assistance in selecting courses.

(*Large Poster*)

ST. THOMAS
Industrial School
EVENING CLASSES

1912 COURSES—1913

Woodworking.	Dressmaking.
Building Construction.	Millinery.
Mathematics.	Commercial Work.
Mechanical Drawing.	Practical English.
Applied Science.	

ANY person over fourteen years of age is entitled to attend these classes, if not enrolled in a day school.

Here is a chance for you to increase your earning power, cultivate your mind, and make yourself a more useful citizen.

There is no entrance examination. Circular and application form may be had at the office of this firm. The principal will be pleased to give information or advice to any one interested. He will be in the City Hall, evenings October 9th, and 11th, from 7.30 to 9.30 to enroll intending pupils.

FALL TERMS:

October 28th to December 20th.

SPRING TERMS:

January 6th to April 30th.

We have pleasure in recommending these Classes of the St. Thomas Industrial School to our employees.

Firm Signature.

SESSIONAL PAPER No. 191d

(Circular for Distribution.)

St. Thomas Industrial and Commercial School

December 30, 1912.

DEAR FRIEND:

The St. Thomas Industrial and Commercial School will re-open on Monday, January 6th, for the second term which lasts till April 30th.

All students should be present on the first night that their class meets. "Nothing can be accomplished without effort." You are urged to make the necessary sacrifices to attend regularly and follow the courses laid down by the teachers. You will be stronger mentally, a more useful mechanic, and a more valuable citizen by reason of your efforts.

It is probable that school will close with a banquet or entertainment at the end of the winter term.

Students kindly remember to bring the fee of One Dollar for the second term on the first night.

Call the attention of your friends to the re-opening and urge them to take advantage of the long winter term.

Wishing you a happy and prosperous New Year, I am,

Sincerely yours,

A. VOADEN, Principal.

F. W. WRIGHT, Chairman, Industrial Committee.

Notice of Absence

St. Thomas Industrial and Commercial School

Nov. 30, 1912.

DEAR FRIEND:

You attended.....evenings out of .....during November.

The courses of study are all carefully graded and you will readily understand that to miss several evenings will seriously handicap you in your work.

Do not let any trifling excuse keep you from your evening's work. We know that you are often tired after your day's labour, but you will be amply repaid for any sacrifices you may make by the increased powers and usefulness acquired.

Respectfully yours,

A. VOADEN, Principal.

CHAPTER XLV: TESTIMONY FROM VARIOUS AUTHORITIES.

SECTION 1: INFORMATION OBTAINED FROM Mr. WILLIAM S. ELLIS.

The following memorandum was received from Mr. W. S. Ellis, Dean of the Faculty of Education, Queen's University, giving his views on the following question:—

"Can the present schools, staffs and appliances, be profitably employed in any scheme of technical education that may be organized in the immediate future in Canada?"

Separate System Preferred.

In my opinion it would not be wise to attempt to arrange any system of technical education in connection with the primary and secondary schools now existing.

The reasons for this conclusion are these:—

Education is a deliberate attempt to adapt the younger members of the community to the conditions that civilization will impose upon them. This adaptation has two aspects: (I) individual, (II) social; but both ought to be developed to a considerable extent in the schools.

On the personal side the outcome should be a self-reliant, inquiring, mentally alert, independent member of the community; a man who is master of his work because he understands both the principles and processes employed; a man who has that interest in his work that will lead to effective, artistic production, and the personal gratification that arises therefrom.

On the social side he should be trained to work intelligently for his employer, whether that employer be himself or not; he should know that economic conditions make it necessary for him to correlate his efforts to those of others, and that the final output of his labor, both in quality and quantity, must have relation to competition, to market conditions, and to the general prosperity. The aim of a technical school, if it is to serve the purpose of the community, should be to develop such capacities and characteristics as will make the producer both facile and intelligent, no matter what part he may play in the industrial process.

The Old Type of School.

There is in this Dominion a type of school that is a heritage from a time when conditions were vastly different from what they are today. Then education was *liberal*, that is, did not apply to the affairs of life. Moreover, it was for the

classes who looked to the professions for employment; it was costly, therefore exclusive. The workman's child was destined to service, and early in life started on the long apprenticeship—really an educational process—which prepared him for his occupation. Such schools are still efficient for professional purposes, but only for these.

A new kind of school is wanted, with different aims, different processes of training, and a different type of man to guide it, who shall have an entirely different outlook upon life and industry and human work.

There are men still living who were brought up with a tallow candle, the stage coach and the seven years' apprenticeship. But the electric light is not farther away from the candle, nor the Pullman from the stage, than the social conditions of today are from those of this man's childhood. The commercial products that were then the luxuries of princes are now the necessities of artisans; the natural forces that served the conjurer's needs now drive the mechanics' tools; and the political questions that employed the best talents of the ruling families are now settled offhand by the reader of the village newspaper.

In one important respect, though, there has not been equal advancement. The school that was is the school that is, both in method and aim. We still teach boys to read, without being careful to give them the desire to read. We give them mathematics that have but little application in their lives, and we emphasize scholarship and examinations as if attainments that are of value could be measured in this way.

The New Type of School.

The new type of school will make industry the key of its training, the capacity to take effective and intelligent part in turning the raw materials of the country into products in commercial demand will be largely its aim, and the desire to put honest, personal effort into work undertaken will be seriously cultivated.

This is not the point of view of the present school at all; and the men who are generally giving excellent service in conducting these schools have been trained under such circumstances that they cannot adapt themselves to grapple with the needs of industrial training as the problem presents itself. They do not know these problems, hence they have no vital concern in solving them.

No better illustration of this could be had than the failure of the Manual Training movement to bring the results that were looked for. It has turned out to be a valuable adjunct to literary education, and has been exploited as an intellectual agent, but it would be a rash thing to assert that the industries of this country have materially profited by that experiment in school work. Yet the fault was not inherent in the thing itself, but in the way it has been administered.

Technical Training a Thing Apart.

Such circumstances lead me to hold that any system of technical training should be established in schools organized, equipped and staffed for that purpose. The curriculum and appliances should be provided solely for the end to be attained. The course of study and equipment of the ordinary school do not lend them-

selves to this purpose, and even if they did or if they were supplied specially, there is still the most important matter the directing mind which has been trained along the lines of the old education, and mainly engaged in managing schools of a literary and cultural character, while the technical division would be only a department annexed and hence made subservient to the needs of the main institution.

I hold it to be vitally essential that such schools should be in charge not of department masters of larger institutions, but of principals—each closely connected with the industrial life of his community—capable of discussing the problems arising out of these operations, and assisting in their solution.

Higher Technical Education.

In the matter of higher technical education, these remarks do not apply to the same degree. The science departments of the Canadian Universities have developed generally into technical schools, in some cases of somewhat limited range, but having for their main purpose the development of capacity for undertaking and directing industrial operations. There does not seem to me to be the same pressing need for new institutions at this advanced stage that there is for adequate training in the earlier years.

Three Classes of Schools Needed.

I am further of opinion that in the Dominion there is room and need for three classes of schools to be attended by children during the primary and secondary period:—

(1) The class that will provide a general education as a preparation for a college or a professional course. Such schools exist plentifully enough now in the older provinces, and in Ontario are generally efficient.

(2) The class that will furnish adequate industrial training, according to the requirements of the community, in agriculture, mechanical operations, manufacture of products of mines and forests, transportation or household science.

(3) Schools of Commerce dealing on one hand with financial operations and on the other with problems of the marketing of material.

The question of the establishment, supervision and support of these schools follows as a corollary from the suggestion of their existence. It is a well recognized principle of representative Governments not to interfere unduly in those social developments for whose administration private or institutional means are available. But there comes a time for some of these great social movements when they pass beyond the limits of private control. Then it becomes necessary for the Government as the head of the state to take charge of them.

Government Direction Essential.

That is the case with the problem of industrial educational needs at the present time. The whole movement has reached such magnitude that it requires vigorous, intelligent direction along lines that will make for certain progress. It is clear, for instance, that industry in the future must depend on the skill and intelligence

of workers. That is the lesson of German competition to-day; but skill and intelligence are reached only by training, and the enormous waste of human capacity through the drift from schools of untrained, uneducated, immature boys and girls far outweighs in disastrous results the losses by fire and flood.

It is surely a pressing duty of the state administration to provide means to put this raw material of humanity into a state of efficiency, for the present drain is sapping the national life by its low ideals, and its incapacity for service. Apart altogether from the producers' point of view, I submit that it is the duty of the Government to go into the manufacturing business itself to the extent of turning the raw, inefficient material of humanity into the highly efficient, intelligent workers required for national prosperity.

The agencies by which such manufacture will be carried out will be technical schools organized and directed by men capable of reading the future in the present, and of building for the years to come on the conditions now existing.

SECTION 2: INFORMATION OBTAINED FROM Dr. L. E. EMBREE.

Technical Courses in High Schools.

Dr. L. E. Embree, Senior Principal of High Schools, Toronto, filed with us a copy of his report to the Management Committee of the Toronto Board of Education on the enlargement and correlation of High School work in that city.

Assuming the primary object of the Board to be that of making the High Schools subserve as fully as possible the interests of the greatest possible number of citizens, Dr. Embree points out two defects in the present organization of the schools which stand in the way of this desirable efficiency.

In the eight High Schools the educational trend is in the direction of a professional life. Any pupil who desires to enter a profession finds a High School suitable for his purpose within a short distance of his own door; while those who seek special preparation for industrial, commercial or domestic life are obliged in many cases to travel long distances to the Technical High School in the centre of the city. The result is that many pupils who come within the professional atmosphere of the High Schools drift into professions for which they are unsuited, or give up at an early stage the struggle with studies for which they have no aptitude.

Two Year Technical Courses.

The remedy Dr. Embree proposes is to have, in some High Schools, technical classes for a two years' course, the work of those classes to be correlated to that done in the Technical School, and doing the same work that would be done for the first year or two in the Technical School, so that pupils could proceed with the higher work of the Technical School without loss of time.

The organizing of these technical classes would prevent congestion in the Technical High School, which would then be free to carry on its higher work more efficiently. These classes would also afford to pupils the needed opportunity of discovering their special aptitudes, which is now denied to them. If

the demand for technical education in Toronto is as great as it should be by the time the new Technical School is completed, it would not be surprising if Toronto's experience should be like that of Cleveland, where a large Technical School was filled to overflowing at the beginning of the second year of its existence, although there is also in that city a large School of Commerce.

Night Continuation Classes During School Year.

Another defect is the lack of provision for pupils to continue their studies beyond the period when they are obliged to leave school and go to work. The remedy is to establish night continuation classes in High Schools, not for a few months only, but for a greater part of the school year. Toronto, the centre of educational influences of all kinds, with scores of teachers of all grades ready to aid in the work, has hitherto made only the most meagre provision for the continued education of those who have to leave school at an early age, or who are beyond the school age.

These evening classes, besides affording educational advantages, would have also a direct moral influence in serving to counteract the allurements of pool-rooms and other objectionable places of resort. Dr. Embree cites painful instances of parents pleading for the reinstatement of their sons who had been under suspension for truancy caused by the attraction of the pool-room, though in most if not all of these cases the boys' waywardness was due not to any innate badness, but to a desire to escape from an uncongenial environment, because the abstract studies of the High School course did not appeal to them.

A Profitable Investment.

The suggested enlargements of the High School work will add to the cost of those schools; but no progressive business man would hesitate, as Dr. Embree points out, to enlarge his business equipment at considerable cost, if he could thereby secure greater proportionate profits. The profits in this case are to be found in the more adequate preparation of boys and girls of the city for useful and enjoyable citizenship; and the people of Toronto, while they have no patience with wasteful expenditure, do not object to expenditure when returns prove such to be justifiable.

Science Schools and Language Schools.

Dr Embree draws attention to his previous report on the possibility of centralizing the work of the highest, or fifth forms, of the High Schools in such a way that the efficiency of the schools would be preserved, the convenience of the citizens well served, and a considerable economy in teaching power effected. He reiterates the opinion that the plan then outlined is practicable, namely, of classifying the schools into Science Schools and Language Schools, the distinction being based upon the class of work taken in the fifth form.

He also suggested that, in the new Technical School building, provision should not be made for the permanent accommodation of commercial classes, pointing out that the rapidly increasing development of industries in the city

would in all probability cause an increase in the number of students in the purely technical science and art classes of the school, so that the commercial classes would be crowded out, and the Board would be obliged at no distant date to establish a separate Business High School so that after one year in the commercial classes of the public schools, pupils would be able to take the more advanced course without any dislocation of their work.

Actual Work in Shops.

With the completion of the new Technical School building, such relations should be established between that school and the leading industries of the city that pupils of the school could, during the higher years of their course, spend several hours each week in doing the actual work of the workshops. Such an arrangement, whereby pupils could put into practice the principles learned in the schools, could be made to serve in great measure the purposes for which trade schools are called into existence.

The Collegiate Institute Board took one step towards bringing the High Schools into closer relationship with one another by making all the High School teachers members of one staff, as in the public schools; but with this exception the schools are as independent of one another as if they were in separate municipalities. Dr. Embree thinks it inconceivable that in this particular branch of the municipal service the quality of work should deteriorate if its parts should be more closely correlated, as they are in all the other branches of the service.

Consolidated Schools Needed.

Dr. Embree sends a further memorandum on the question raised by Mr. Scott, Principal of the Normal School, Toronto, in his evidence as to the desirability of having garden plots in connection with rural schools. Dr. Embree's opinion is that the "little red school-house" has served its day and should now disappear, at least from the older settled districts.

"When I recall my experience as a teacher of a rural school forty years ago, I wonder by what mysterious providence the children of that time ever managed to grow up to manhood and womanhood. They came to school through the deep snow, and often through slush, and melted the snow and steamed themselves beside the huge box-stove in the corner, and then sat throughout the day in their wet clothes. I don't believe the microbes of disease would stand that kind of treatment now, without having revenge.

"That is one reason why we should have consolidated schools, and have the pupils conveyed to and from school. Another important reason is suggested by Mr. Scott's reply. In such a centrally located school for several sections with a good plot of ground attached, one of the teachers should be qualified to instruct in methods of conducting agricultural operations of various kinds; and instruction should be given in a variety of subjects connected with industrial life.

"I have no intention of discussing other desirable features of such schools, as my object is simply to draw attention to the two points mentioned. I ought to add that these school buildings would become centres of social activity for the neighborhood; but none of these things are new to you."

SECTION 3: INFORMATION OBTAINED FROM PROFESSOR JOHN EVANS.

Prof. John Evans, of the Department of Farm Mechanics and Manual Training, in the Ontario Agricultural College, has been teaching in the latter branch about fifteen years. He stated that Manual Training includes a great deal more than making things in wood and iron; that it is practically a method of teaching more than anything else. Manual Training should not be mistaken for Technical Education, for which it trains inasmuch as it has it has the fundamental principles of various trades. It would decidedly be a very good preparation for industrial training. In the Old Country, Manual Training is treated as one of the ordinary subjects of the schools. It is in the Old Country schools for its cultural value and as a preparation for industrial life.

Those who come for Manual Training to the Agricultural College have not had it in their school days. The average age of those who take it up, that is, the teachers, is from 25 to 30 years. They get enough to make them competent instructors in the schools.

Manual Training in the school is mainly valuable during the growing period before 14 as an educational means, and the educational value is not so great after that.

Mr. Evans furnished to the Commission an elaborate and valuable memorandum outlining a scheme of technical education and its organization for Ontario, with syllabuses of instruction for some of the most important industries. He holds that while the greatest need of our industries is the supply of highly trained leaders such as Day Technical Schools and Colleges are best fitted to produce, yet under our present conditions well organized evening school work is much more likely to exert the most far-reaching influence in the aggregate, because these schools, if properly conducted, can secure earnest, mature and experienced students of a character rarely found in day schools or colleges.

The preparatory courses, together with the general course of instruction which would precede the technical education outlined in the syllabus, could well be carried on in Public and High Schools and Collegiate Institutes having Manual Training centres.

With regard to instruction in technological subjects, Mr. Evans thinks it might be possible in a town or city with no provision for technical instruction, to arrange at the outset with local manufacturers for the use of a part of a factory in which to hold classes, or for the loan of machines on which practical demonstrations might be given. A similar arrangement might be made for instruction in the mechanism and management of motor boats for fishermen.

In his scheme he has considered that there are numerous cities, towns and villages engaged in some one branch or another, and in some instances in all the branches of woodworking, metal working, and textile industries; and in view of facilities for communication and transportation he has endeavoured to divide these places into centres from which might be secured instructors who would travel by rail or other means to outlying districts in case it should not be possible to

enlist the services of competent instructors nearer at hand. For example, Guelph would serve as a centre for Georgetown, Acton, Rockwood, Elora, Fergus, Hespeler.

SECTION 4: INFORMATION OBTAINED FROM Mr. SUGDEN PICKLES.

Inexpensive Industrial Training.

Mr. Sugden Pickles, Manual Training Teacher at London and Stratford Normal Schools and for the London Board of Education, was another of the men who came to Canada from England under the Macdonald Manual Training Fund. Mr. Pickles writes:—

For some years I have been deeply interested in the question of Industrial Education, have visited shops and factories and talked with both employers and employees. In my humble opinion we need a series of schools giving a training as outlined below.

We are all agreed as to the need of some training for our future industrial workers, hence I submit no arguments, but merely outline a definite scheme, feasible and within the reach of any town, and which I am sure would meet the requirements of hundreds of boys who under present conditions leave school at 14 and waste from 2 to 6 years of their lives—eventually, in the majority of cases, joining the ranks of unskilled labor.

As I understand your mission, you are fully alive to what is lacking in present conditions, and are investigating with the intention of finally advising as to what can be done to better conditions. You are doubtless familiar with schemes similar to the one here outlined, but I am anxious to add my plea to the thousands you have and will hear.

Our people in this City are shouting for a Technical School, and will not see that with a few additions to what we already have we could be making valuable preparations towards a Technical School.

If you think my plan worthy of consideration, and are in a position to say so, it would help us along a great deal.

Scheme.

I. Kindergarten.

II. Public School (6 to 14 years of age.)

Sand and clay modelling,
Paper and cardboard work,
Raffia and reed work,
Knife work,
Woodwork, not less than 2 hours per week,
Art and mechanical drawing.

III. High School (14 to 16 years of age)
Industrial Section.—Mornings spent in study of
shop arithmetic,—i.e. arithmetic, mensuration, etc.,—applied to shop problems,
Geometry,—plane and solid,
English,—composition and spelling,
Science,—mechanics, physics, etc.,
Mechanical drawing and blue printing,
Afternoons devoted to
Shopwork—wood and metal, both hand and machine work.

Manual Training as Preparation.

While the Manual Training taught in the Public Schools is considered from its educational standpoint, there is no doubt that it can also be made the basis or foundation of Industrial Training. The chief difficulty at present is the very short time devoted to this work. In London 1¼ hours per week are devoted to Manual Training in wood. In 40 weeks this only amounts to 50 hours. In 50 hours per year of intermittent work a boy cannot accomplish much. Consequently many people, overlooking the short time spent in the workshop, speak with contempt of the work accomplished and see no value in it.

Remedy. At least 2 hours per week for Manual Training. Then more and better work would be done, and we would have an opportunity of preventing the remark so often made, that "Manual Teaching is of very little value in preparing boys for the factory or workshop". More Manual Training would be an inducement to many boys to stay at school longer, as the following figures show.

Last year, out of 152 boys who wrote on the Entrance paper, 66 are now attending the Collegiate. 43 are working, and 43 (or 28%) are unaccounted for. Many of this last number would attend school for two years, if they could attend an industrial class as outlined later.

186 boys at present preparing for the Entrance Examination were asked how many desired to attend the Collegiate Institute. 119 replied in the affirmative. 66 (or 35.5%) expressed a desire to join an industrial class. This Industrial Department could be a section of the Collegiate Institute, arranged for boys with a mechanical aptitude, and would not oust the Manual Training in the professional classes. The course of study suggested to the boys was:—

Mornings:—Practical arithmetic, natural science, English, drawing.

Afternoons:—Practical work in workshop, wood and metal work

Trade and Technical Schools.

Following this, we have choice of two schemes, both of which have proved very successful.

First:—Trade School, similar to the Industrial Department, but specialised; a boy devoting all his time to the theory and practice of some particular trade. This is a costly school and could only be supported by a large city.

Second:—This scheme calls for the co-operation of the workshops, etc., in the vicinity. Here the boys work alternate weeks in workshop and school; getting practical work under regular trade and industrial conditions one week, and the theory and science in school the other week. This method is not as expensive to maintain as the first, but has proved eminently satisfactory. Of course it calls for harmonious co-operation between the practical shop foreman and the class teacher, while probably the ideal system is to have both practical work and its allied theory taught by the same teacher.

Following these schools should be the Technical School, where men could study the science, mathematics, etc., necessary for the highest grades of industrial life.

The teaching of agriculture should not be confined to the country, nor industrial training to the city. There are the makings of many splendid farmers in our city schools, just as there are future captains of industry in the rural schools. With our short term and the number of so-called necessary subjects on the curriculum, we cannot do a great deal in this connection in the Normal Schools, but I am convinced that each year a greater proportion of our graduates is making an effort to teach Manual Training and giving children a greater ability, a greater capacity and respect for handwork.

SECTION 5: INFORMATION OBTAINED FROM Mr. J. S. MERCER.

Mr. J. S. Mercer, Instructor in Manual Training, Collegiate Institute, Woodstock, sends the following reasons why students should be given Manual Training.

General.

1—It is based upon the oldest, the most natural and invaluable method of education, "learning by experience," training chiefly through the ear, the eye, and the hand.

2—It stimulates mental and physical activity to a remarkable degree, increases intellectual capacity, cultivates intelligent observation and comparison, and other good habits of thought and action, thus promoting individual efficiency.

3—It "reveals natural ability," and aids materially in determining a suitable vocation in life.

4—It awakens interest in many other subjects of study, and provides concrete experience "upon which to build the more abstract learning."

5—It promotes a more sympathetic regard for labor, and a much higher appreciation of the skilled artisan.

6—It develops moral power, cultivates "the spirit of good fellowship" and awakens a livelier interest in the school, the home and society, thus ensuring greater usefulness and richer enjoyment in life.

More Specific.

7—It quickens the power of perception—enlarges the vocabulary, strengthens the memory, increases knowledge and arouses interest in the wonderful productions of nature and of art.

8—It develops the power of definite expression, promotes accuracy of the eye, skill of hand, and the unity of both so essential for effective work and gives insight into mechanical drawing and freehand sketching.

9—It teaches the use, construction, and care of tools, develops the "physical faculties," arouses interest in the various processes and appliances of manufacture, and awakens deeper interest in technical and vocational training.

10—It quickens imagination, supplies "clear-cut mental images," develops originality, stimulates invention, awakens interest in useful design and artistic finish, and develops appreciation of the useful and "the beautiful" in surrounding objects.

11—It develops sound judgment, determines suitable materials, instruments, tools and methods to complete the drawings required and to construct the objects designed.

12—It strengthens the will, encourages honesty, truthfulness, perseverance, neatness, thoroughness and self-reliance.

Note.—The term "Manual Training" as used above includes designing, drawing, and finishing as well as "tool work."

Weighty Opinions by Notable Men.

Man only understands thoroughly that which he is able to produce.—*Froebel.*

If a man can write a better book, preach a better sermon, or make a better mouse-trap than his neighbor, though he build his house in the woods the world will make a beaten path to his door.—*Ralph Waldo Emerson.*

Man is a tool-using animal. He can use tools, can devise tools; with these, granite mountains melt into light dust before him; he kneads iron as if it were soft paste; seas are his smooth highways, winds and fire his unwearying steeds. Nowhere do you find him without tools; without tools he is nothing, with tools he is all.—*Carlyle.*

SECTION 6: INFORMATION FROM MISS AUTA POWELL.

Miss Powell, Art teacher in the Normal School, Toronto, furnished to the Commission a valuable memorandum showing how Drawing and Art can be used as a method of correlating many of the school subjects. The memorandum follows:—

Drawing and Art in the Public School.

Art is the foundation upon which all technical education rests. It is the universal language for the expression of ideas of form. Nearly all man's constructed works are first made to exist on paper in the form of plans or drawings.

It cultivates the power of invention, makes possible the appreciation of a fine piece of work and insures the ability to discriminate between good and bad design.

Art as taught in the Public School is the only training in this line that is received by the masses, who leave school to become wage earners and who determine the standard of taste and skill in the manufacturing world.

In every subject the teacher draws to make her meaning clear to the pupil. The pupil draws to show that he has understood what he has read or been taught.

Correlations With Other Subjects.

Correlated with History: For the description of plans, fortifications, attacks, situations, etc.

Characteristics of different nationalities.

Architecture of different countries—ideals as revealed by public buildings, dress and occupations of different centuries.

Geography: Maps of all sorts. Illustration of definitions, physical features—plants and trees of different countries and ages. Typical appearance of people of different nations, types of architecture as due to climate.

Language: Pictures drawn. Children tell a story. A story told or read. Children make a series of pictures to illustrate a story.

Literature: Similar treatment.

Reading: Similar treatment.

The teacher in the 1st book forms finds it invaluable in teaching new words and sentences. Observation tests may be given, the teacher drawing a number of pictures on the board and covering them with a curtain while the children are out. These are uncovered for a moment while the children study them. They are then covered again while the children write lists of the things they have seen pictured. The plan may be reversed, the list being written on the board, the children painting the pictures.

Essays: May be illustrated and decorated with initial letters and tail pieces, while the arranging of each page with suitable margins and the margining and spacing of all letters, business cards, etc., comes under the head of Art composition.

Arithmetic: In problems that require diagrams or illustrating and especially in number work and counting; while in adding and subtraction drawing seems to be a necessary step between the concrete and the abstract.

Seat Work or Busy Work: Different exercises in drawing, especially those involving repetition, such as in design, are the most successful ever devised for keeping pupils happily and profitably employed.

Constructive Work: Simple objects made may be used as models. The art classes provide designs for book covers, the placing of title, good lettering and spacing, decoration of pages, margins, initials, tail pieces, illustrations, book plates, etc.

The spacing, proportion and decoration of calendars, menu and place cards, programs, book marks, match scratchers, etc.; borders, corners, and single decorative units for boxes of all kinds; designs for hinges and lock escutcheons, book rest ends, etc.

Patterns for textiles—woven, printed, and tapestry or carpet designs. Stencils and wood blocks.

Wallpaper designs, color harmonies.

Sewing: Embroidery designs, proper spacing as in tucks, good lines, etc. Color harmonies in dressmaking and millinery.

Domestic Science: Decoration and illustration of books and recipes.

Nature Study: Illustration of laws of growth, etc. Sketches of plants, germinating seeds, typical trees, etc., both from these and from memory after careful study.

Agriculture: The study of trees. Shade trees—forest trees—trees that are unprofitable—those good for timber on account of growth or grain. Collecting of sketches to form books. Plants that help the farmer. Plants that are enemies.

Bird friends, bird enemies; insect friends, insect enemies.

Good and poor varieties of grain, etc.

Moral and Social Training: The pupil learns, through Art composition and Design, that the laws that make for harmony in Art are the very laws that when obeyed make for harmony in the home, the community, the nation, and the world, and that no single unit however small can fail to fulfil his part without marring the beauty of the whole to a greater or less extent.

SESSIONAL PAPER No. 191d

CHAPTER XLVI: SUMMARY OF OTHER TESTIMONY.

SECTION 1: ON HAND AND EYE TRAINING.

There was a general consensus of opinion that Manual Training, Domestic Science, and Hand and Eye Work generally, were desirable features in the curriculum of the Public Schools. In places where these subjects had not yet been introduced, their establishment was usually favored, though in some cases the local authorities were awaiting further information, and in others the funds were not available.

Views of Teachers.

School Inspectors, Superintendents and teachers spoke in favor of Manual Training. The general opinion was that these subjects tended to keep boys longer at school.

Views of Employers.

The view of employers was that the young people at present are not trained sufficiently along mechanical lines. A boy who shows aptitude has a better chance of promotion, and employers say they cannot get enough of that kind. If a boy came to them with mechanical training, they could advance him much more rapidly. School training has not directed boys' ideas towards mechanical work, and they pick up any job that presents itself, only to find later that they are unqualified for regular work.

Manual Training would be a great advantage to boys taking up drawing and designing in industries. It has been shown that boys with Manual Training make better apprentices. Most of them go into engineering, or failing that, into mechanical trades. Manual Training develops observation, orderliness, and gives insight into processes and use of tools. It trains the hand and develops the inclination to make something, and therefore fits boys for mechanical pursuits. The opinion was expressed that Manual Training would make a boy a better farmer, as he would be more accurate.

At present the young people do not see the need of Technical Education, or are not in sympathy with it. Manufacturers would co-operate with the Government in establishing Technical Education. Several witnesses expressed the opinion that Manual Training and Domestic Science are just as necessary as commercial training, to prepare children for their future work.

Attitude of Labor Leaders.

At Berlin the Labor Council endorsed Manual Training as now established.

The view was expressed that in some cases Manual Training might give a lad some qualifications and help him, while in other cases it might do harm by

giving him a false opinion of what constitutes a mechanic. Very often a boy thinks he is a full-fledged mechanic when he has hardly learned the principles. At the same time, hand training is a benefit.

Correlation with School Curriculum.

It was held that Manual Training should be correlated with other studies; e.g. a boy might as well write his composition on some industrial subject as on any other theme. The Manual Training course should be continued in the High School, and cover metal as well as wood. The view was expressed that the course should be given in each school, and not at a centre, so as to save time.

Results of Experience.

At Kingston, where Manual Training was introduced in 1900, it had been found a help in teaching other branches rather than a hindrance, as had been feared. It had not detracted from the attendance at classical or cultural courses, which were still taken by those looking towards professions. It had been found a means of keeping in school boys who otherwise would have left and taken up industrial work, and it also gave a new bent to those following purely classical studies.

At Galt the Manual Training instructor stated that the Manual Training course covered 4 years; 2 years being in the High School for 1½ to 2 hours weekly.

At Stratford Manual Training and Domestic Science are given for 2 years in the Public School and 2 years in the High School. It had been found helpful, though it did not go far enough.

An Inspector stated that the amount and extent of other studies could be diminished to provide for the new education. Too much time was now spent on arithmetic to very little purpose, as the problems were beyond the child's capacity.

Dr. Putman, Inspector of Schools at Ottawa, stated that since the introduction of Manual Training into the Model School he has noticed that the short time given to it has not interfered with the boys' other studies. He would like to see the time for it doubled, as 1½ hour weekly is too little. Manual Training has an educational value, and that is its main value, apart from being a good preparation for industrial work. All boys would be the better for having that in their school days, no matter what their future occupation. It should be extended into the lower grades. Construction work is now given from the Kindergarten to the highest 4th. At least a year might be saved in the course provided the best kind of work is prepared for them.

Mr. Metcalfe was of opinion that work with tools is too much for boys as young as 8 and 9. He had tried it in the 4th grade, giving knife work in December with the intention of introducing tools after Christmas, but after 3 lessons with tools he found that they were not old enough to do the work sufficiently well to satisfy themselves or him, and were glad to go back to knife work, because they enjoyed doing what they could do well. He therefore concluded that tool work was too advanced

and difficult for them. The knife will save time later in the course, as they will not have to spend a long period in preliminary measurements, etc., like those who have had no previous training. Manual Training is appreciated in Ottawa because of the all round benefit rather than as industrial training. For the last few years an exhibition has been held at the Central Canada Fair, with a class of boys at work, and people generally seem to be very well satisfied.

In Ottawa there are 13 centres and 4 special teachers, besides 3 regular principals of schools who take the boys of their own class. The special teachers move about to the different centres, to save the boys' time, and thus can take more boys.

At Port Arthur the Women's Civic League is most anxious to have Domestic Science taught in the Collegiate Institute, and also wishes to establish Evening Classes in Domestic Science for the benefit of married women and others. Many young housekeepers would be glad to learn about the comparative value of foods. Dressmaking and millinery should be taught; economy would result if women knew something about these subjects.

Manual Training has been established in some schools, and the boys like it and take great interest in other subjects because of it. The academic work will improve through the introduction of Manual Training, and Manual Training makes better citizens. It is hoped to extend it to iron work. Boys regard it as recreation, and thus it gives them a rest, and makes them more alert, as well as giving them an outlet for their energies. If a boy has something to work at with his hands he can appreciate that he is making progress, and it gives him a respect for manual labor. It would be a good thing if the teachers let the boy pass judgment on the article he has made.

The chief reason alleged for boys leaving the public schools is that they find nothing there which helps them to obtain good positions in industries.

Trades could not be taught in the Public School; e. g. a school cannot train a plumber or electrician; but boys could be taught elementary electricity, mathematics in relation to scales and plans and the use of the carpenter's square. Elementary pattern making is only a continuation of what was begun in the kindergarten, and any child ought to be able to draw a pattern and cut it out of cardboard. The elementary principles of physics and mechanics should be taught. Preliminary training would make for industrial efficiency afterwards.

At many places Manual Training has been found an aid to other studies, and the opinion was expressed that children would not only make better progress in other subjects, but that it would simplify the technical work in the High School. It gives a general knowledge of design and perspective, and thus gives the best possible preparation for industry. It should be taught from the lowest grade up.

A pattern maker stated that he could have learned his trade more easily and better if he had had Manual Training at school.

Manual Training and Domestic Science were generally regarded as the essential foundation for any scheme of Technical Education.

Further provision for Manual Training would be a good thing, especially for city boys, who need it most. "We cannot have too much of Manual Training and Domestic Science."

Manual Training in Evening Classes.

Manual Training should be taught in evening schools and carried on much further than at present, as without it workers have little chance of getting ahead. At Peterboro the Manual Training room is filled for evening classes, and it is a most popular subject. No difficulty is found with discipline.

SECTION 2: ON DRAWING AND ART.

Great stress was laid by witnesses on the necessity for a knowledge of drawing in practically every trade. The average workman is often unable to follow working drawings or blue prints. Nearly all workmen should learn to read plans. A knowledge of mechanical drawing would help men in their work. In the furniture trade, 95% of men would benefit by being able to work from blue prints and drawings, and applying freehand drawing to designing. It is a pity that mechanical drawing is not taught, as it is more needed in industrial work than freehand drawing. Some men who can do mechanical drawing are unable to design, and this should be taught.

Employers' Views.

An employer of labor stated that he had to get his patterns designed by a modeler in clay, and he would be glad to have some young men coming up in his own business who could do such work, so that he did not have to go outside for his models. It is a man of that class who is more needed than a highly salaried employee. It was stated that stonecutters and bricklayers as a rule depend on the foreman to make patterns and describe the work, but it would be desirable for them to learn this themselves.

At Paris from ½ to 2 hours weekly is devoted to mechanical and technical drawing. At Belleville pupils are taught to design and build from their designs. This develops latent ability and shows a boy his bent.

Employees' Views.

Several witnesses said that mechanical drawing would have been a great benefit to them. A moulder does not need to know drawing, but if we wants to become a foreman, he has to learn it, especially in the machinists' branch. One witness had found the mechanical drawing course in the Mechanics' Institute very helpful.

Evening Classes.

Evening classes in drawing and designing would be helpful, if boys could be induced to go to them. At London an Art School had been established some

years ago in connection with the Mechanics' Institute, but 'it was like drawing teeth to induce the boys to go to it,' though quite a number of journeymen attended.

A suggestion was made that moving pictures might be used to illustrate mechanical movements.

Artistic Training Needed.

A brass manufacturer said that three-fourths of the people in his business were no good at artistic work, and it took too long to train them himself. A man requires the eye of an artist to do his work, or it will not sell, as it does not look right. A good Applied Arts department might help. The growth of business is hampered through lack of skilled artistic workmen; that is an acute lack.

CHAPTER XLVII: AS TO EVENING SCHOOLS.

SECTION 1: FROM Dr. JOHN SEATH'S REPORT.

In the report by Dr. John Seath on "Education for Industrial Purposes", he discusses the industrial and technical evening school in the following paragraphs:

B. The Industrial and Technical Evening School.

In countries like Great Britain and the United States, which have only of late years awakened to the imperative need of systematic industrial education, the evening school is by far the commonest means of supplying the lack; and, where no day instruction is available, it is manifestly the only means. Indeed, the English and, as yet, the Scotch continuation schools are held in the evening. In the United States, wherever there is a day industrial school, almost invariably there are evening classes, and there are many evening classes where there are no day schools. In France, too, the evening class is still very common, and, in Germany and Switzerland, it is found, in many places, to be more convenient to hold the compulsory continuation school in the evening. The day industrial schools are more or less substitutes for apprenticeship. The evening schools, on the other hand, merely supplement the imperfect and often specialized training of the workshops by broadening the pupil's acquaintanceship with the processes of his trade and supplying him with the theoretical knowledge he cannot obtain in the course of his daily work.

The evening school has one great advantage over the day school. It overcomes the two main obstacles in the way of the day school—it does not interfere with the wage-earning of those who attend it; and it may be maintained at a comparatively small cost, for the equipment and accommodations used by day are available for it, and the part-time day teachers may be members of its staff. But, even under the best conditions, the evening school must be less effective than the day school, for it has this serious disadvantage, that is is held when the mental capability of the pupil, especially of the young pupil, has been lessened by a day of toil.

* * * * *

The evening school should provide for the workman in all stages of his advancement. In it must be represented the general and the special industrial schools and the technical schools, with their varied courses. Here, however, in particular, the courses must be flexible, and special consideration given the needs of the individual. Provision must also be made for both sexes, and for adults as well as adolescents. On the latter score there is usually little trouble in Germany and Switzerland, where, owing to the developed condition of their systems, the age

and attainments of those attending the evening classes are fairly uniform; but, for a good many years, owing to the adults' self-consciousness, effective organization will, with us, continue to be a difficult problem. Moreover, as the limitations of the evening classes are such that the instruction in each subject can be provided not more than two or three times a week, and not more than a couple of hours each evening, such courses must be less comprehensive than those of the corresponding day school or they must entail much longer attendance. Notwithstanding these drawbacks, the evening school must, for many years, be our chief reliance. After all, as, indeed, is demonstrated by the attendance at the Hamilton and Toronto Technical Schools, the devotion of five or six hours a week to directed and assisted evening study, which will increase their wage-earning power, is not so serious a tax upon the ambitious and healthy workman and workwoman. Nor should the educationist overlook the moral advantage of such useful occupation of the evening hours, especially to the adolescent.

In the evolution of a system of industrial education in this Province the first stage must be the evening school. A few, indeed, have been already established, and if, as is probable, competent teachers of industrial subjects—drawing in particular—are procurable in other centres, progress might be made, pending the establishment of the comprehensive system. The Government should, I think, defray a share of the cost of maintaining such schools; a larger grant being given a village than a town, a town than a small city, and a small city than a very large one.

SECTION 2: EVENING SCHOOLS AT VARIOUS PLACES.

A system of evening schools has been partly developed by the Provincial Department of Education and the Boards of Education of several of the large cities. The following points from evidence where enquiry was made are representative of the information obtained also in other places.

In Toronto, Hamilton and Brantford, evening classes are conducted to meet the need for technical training, while classes of an industrial character are held at various centres in the following places: Toronto, Guelph, St. Thomas (N. Y. C. Railway Classes), Stratford (G. T. R. Classes), Brockville, St. Catharines, Berlin, Galt (the latter providing a course in "The Theory of Iron and Steel").

Outside of Toronto and Hamilton, the only subjects taken up are woodwork and metal work, household science, and mechanical drawing. In Toronto and other cities evening classes in Manual Training and Domestic Science are held in public schools and other institutions.

At Toronto.

The evening classes at the Technical High School, Toronto, provide scientific, artistic and practical training for apprentices, journeymen, foremen, clerks, salesmen, and others engaged in industrial or commercial pursuits during the day time, and who desire supplementary instruction in the application of Science and Art to the trades, manufactures and other occupations. While regular

courses are defined, no restrictions are enforced, each student being permitted to select those subjects which will best help him to make progress in his particular trade or business.

The age of students is 15 and over.

The Courses given are as follows:

1. Architecture and Building Construction—comprising three courses of architecture, freehand drawing, perspective, mathematics, estimating and applied mechanics, and strength of materials.

2. Machine Drawing and Design—comprising mathematics, machine drawing, freehand drawing, machine sketching; applied mechanics and strength of materials.

3. Industrial Design and Art—comprising freehand and geometrical drawing, history of ornament, industrial design, modeling in clay or woodcarving.

4. Electricity and Magnetism—comprising mathematics (arithmetic and algebra), electricity.

5. Chemistry—comprising chemistry, mathematics and electricity.

6. Mineralogy and Geology—comprising chemistry, geology and mineralogy.

7. Mathematics—comprising mathematics and strength of materials, or actuarial science.

8. Household Science—comprising science, millinery and or embroidery, cookery, household economics, home nursing and hygiene. (Courses may be taken separately or combined.)

At Hamilton.

At Hamilton evening classes in the Technical School cover the following subjects: mathematics, physics, chemistry, forging, experimental electricity, machine shop practice, woodworking, printing, mechanical drawing, architectural drawing, dressmaking, millinery, cookery and a number of branches of fine and applied arts. The attendance in 1909 was 385; in 1910, 438.

At Other Places

At London, the Dennis Wire and Iron Works Company has established a class for its workmen in designing, geometry, mensuration, draughting, construction, reading blue prints, laying out work, etc. They have a library, and also use the Public Library. The men help each other.

In Berlin, a night class to give factory girls instruction in Domestic Science is held by the High School teacher once a week in the High School kitchen.

At Sault Ste. Marie, night classes have been established in the Collegiate Institute to meet the needs of the apprentices and workmen of the Lake Superior Steel Company and Subsidiary Companies. Instruction is given in mathematics, mechanical drawing, etc.

SECTION 3: SUMMARIES OF MUCH TESTIMONY.

As to Value.

The establishment of evening classes was generally considered desirable, both by employers and employees. It was described as an ideal employment for young men to attend evening classes, even if they did not need it for practical

purposes, and the community, employers and employees would all benefit. Those who are already at work would thus have an opportunity of completing their education, while boys would be withdrawn from the bad influences of the street and put at useful work. Some journeymen as well as apprentices would attend the classes if established. Factory workers could improve their position if they had instruction connected with their trade.

Several witnesses approved the idea of evening classes from the cultural, quite as much as from the industrial or technical, point of view. One said that it would be good even for college graduates to attend evening school and certainly for artisans and apprentices.

A doubt was expressed by some witnesses whether an apprentice could be trained sufficiently at a night school. Others considered that it would be a good thing for a boy who has taken up a trade to attend evening school once a week for instruction along lines that would be useful to him, and if it were a real help to him, he would be more valuable in his work. It was suggested that evening classes would be the best means of improving the quality of the apprentice.

Employers generally were favorable to the idea, stating that it would benefit the young workers, and that employers should, and probably would, offer inducements to their apprentices to attend. Technical education would make the men more valuable in their business.

Some employers said that there was no special kind of industrial training that would benefit their employees, but that evening classes for general culture and the development of intelligence would be of advantage. Others considered that it was too tiring for an apprentice to go to night classes, and that an 8 hours' day was sufficiently exhausting under present conditions.

It was pointed out that a man's value might be increased by technical education, and yet that that value would not be recognized by increased wages. On the other hand, though a man might not get a higher wage, he might turn out more work and thus earn more in some trades. Men who attended night school would be more efficient. The better educated a man is, the more valuable he is to his employers.

One witness stated that technical education might mean higher wages, but not necessarily a higher selling price for the product since the labor would be more efficient. Such men would strengthen industry to the extent that there would be a better class of product; they would be better men and better mechanics. On this account employers would encourage them to go to night school.

The evening school must be adapted to the needs of the industries. Some employers had paid the fees, but this did not always answer.

From the workmen's point of view, evening classes were advocated as a means of helping the ambitious to get recognition and promotion, which is only possible to a man with education. A man who can devise means of saving labor and preventing waste is worth more to his employer. Evening schools would make better and more capable workmen and make them more steady and studious in their habits. Several witnesses mentioned that they would have attained to higher positions if they had had an opportunity of improving their knowledge in evening classes.

The Labor Unions approve of apprentices attending evening school. One witness stated that he had found it very tiring to attend night school 3 times a week after working all day.

As to Attendance.

Opinions differed as to making evening schools compulsory, many witnesses considering that it was better to make them attractive. Where classes had been started, great difficulty had been experenced in securing regular attendance, as boys were easily distracted. The boys in factories do not seem to care about coming, and this is the very class that should be attracted. The question of a shorter working day was regarded as not very important in this connection, as the ambitious would go to evening school in any case, and the idle would not go even if they worked shorter hours.

If a man had ambition enough to go to an evening school, it would not make any difference whether he worked 8 or 10 hours; and it does not follow that shorter working hours would ensure better attendance at evening classes.

Many take Correspondence Courses, which occupy quite as much time as would be required for evening classes, and no doubt a large number would be influenced by the example of others. Twice weekly would not not be too much, even for men working 10 hours.

It is difficult to get the boys of 14 in to classes; at about 18 they realize the need and come more willingly, though many do not care to attend with younger boys, as they have forgotten so much by that time.

Various methods of attracting students to evening classes were discussed. Advertising had not been found sufficient; the apprentice and mechanic must be approached personally. It is hard to compel them unless they realize their own need. Evening classes could be made sufficiently attractive to insure good attendance, but other forms of amusements and entertainment are too plentiful, and should be controlled in some way.

Several instances were quoted of classes which had been established and found a failure, owing to the impossibility of securing attendance. On the other hand, a case was mentioned of a young man starting a class and charging a fee of $15, and he got 18 or 20 pupils. Mechanics here are not as persevering in the matter of evening classes as in England.

The view was expressed that night classes should be replaced by day instruction for apprentices as soon as possible.

As to Subjects.

The great majority of witnesses considered that mechanical drawing, reading of plans, arithmetic and designing were the subjects most needed. Special subjects relating to the various trades were also desired, such as house-construction, etc., for carpenters, gas engines for motormen, chemistry, physics, metallurgy, wood and metal work for various trades; paper-mill chemistry for paper-mill employees; paints, ingredients and mixing, for painters; cutting and fitting for tailors; tanning; electrical engineering, etc.

Stress was laid upon the importance of designing in several trades, both for those who get up original designs and those who use tools. Factory workers with drawing and arithmetic could secure better positions. Girls should be instructed in the chemistry of laundry work, and all in lines of Domestic Science.

Classes held in the evening in such subjects as chemistry, mathematics, grammar and composition, penmanship, etc., would be useful, and working men would avail themselves of them. It would also be desirable to have instruction in the principles of various trades, such as moulding and stove mounting. Men who understood the principles of their trade would make better and safer workmen.

Evening classes in Domestic Science would be welcomed, especially for foreign domestic servants, to enable them to learn English and the methods of Canadian households, and many mistresses would gladly pay the fees. The High School rooms could be used for these evening classes,

A suggestion was made that evening classes in Agriculture might be held in connection with an Illustration Farm or School Garden.

School Buildings to be Used.

In most places the school authorities would be glad to allow the use of the public school. At present they are only getting half the good of the buildings and equipment.

Financial Support.

The view was expressed that night schools should by subsidized by the Provincial Government to begin with. The State should provide night schools for those who have to go to work at 14.

Teachers.

The principal difficulty in connection with the establishment of evening classes was the provision of teachers. It was recognized that the success of an evening school would largely depend upon the teacher. Ordinary day teachers would be too tired in most cases, though some expressed willingness to take evening classes. It was suggested that expert teachers might travel to different schools in rotation.

Witnesses were unanimous in stating that trade instruction should be given by practical men; some foremen make good instructors, but many do not. At the same time, a foreman can help young fellows by talk and example, even if unable to teach. Men from industrial plants could probably be obtained as assistants for imparting mechanical processes.

College graduates could give instruction in engineering, and graduates of the School of Mines would be able to teach in evening classes. The opinion was generally expressed, however, that College instructors would not have time for outside work.

The opinion was expressed that sufficient teachers could be found if the monetary inducement were sufficient. Classes taught by practical men had been

found the most successful, but public school teachers could take such subjects as arithmetic and English.

Evening Class *vs.* Correspondence Course.

Several witnesses stated that evening classes would be more beneficial than Correspondence Courses, as the personal contact with the instructor would simplify the lesson. Correspondence Courses were expensive, and not always satisfactory.

Effect of Evening Classes on Character.

If evening classes did nothing more than direct boys' minds into new channels they would be doing good work. They would teach men to use their heads and common-sense, and thus make them better workmen, besides fostering hope and ambition.

Evening Classes for Women and Girls.

Evening classes in Domestic Science have proved popular, the students being drawn from all classes.

General Conclusions.

The two most important problems to be solved were the provision of teachers, and the question of securing attendance. If the classes were attractive, and taught by competent instructors, boys would come to them, and two nights a week would not be too great a strain on either teachers or students. Some kind of premium for regular attendance would probably have to be offered.

SESSIONAL PAPER No. 191d

CHAPTER XLVIII: AS TO CORRESPONDENCE COURSES.

SECTION 1: SUMMARY OF MUCH TESTIMONY.

The opinion was generally expressed that a large sum was spent annually in Canada in Correspondence Courses, and that this money could have been spent to better advantage if instruction could have been obtained in evening schools under competent teachers. The personal contact with a teacher would cause progress to be made faster and difficulties could be explained as they arise. Many of those taking the Correspondence Courses have not sufficient education to be able to explain their difficulties by letter, and thus they do not get the help they should from the course. The majority of men would gladly pay the same amount for an evening class where they could get personal instruction.

On the other hand it was pointed out that Correspondence Courses meet the case of the man who is unwilling to attend an evening class with younger lads, and who feels his lack of education the most keenly. Another point in favor of the Correspondence Course is that a valuable set of text books is supplied immediately, and even if students do not take the whole course, the books are of great assistance to them.

A number of witnesses stated that they had taken Correspondence Courses, or were taking them, but few had gone through a complete course of study. All received benefit by what they learnt even in the incompleted course. The view was expressed that a million dollars had been expended from the Province on Correpondence Courses.

It was pointed out that the money spent on these courses shows the desire for technical education, and that this need should be met in some more satisfactory way. In order to reach outlying districts, technical schools would have to have correspondence departments.

Manufacturers and taxpayers should contribute towards providing facilities for those whom the technical schools could not reach. The Government might take up this question, as it is important to foster education along with industrial growth.

One witness described how he had started a class among railway employees simply to help them with the difficulties arising out of their correspondence lessons. Many men get discouraged and drop the course.

The success of the Correspondence Courses as a business venture was ascribed to the large amount of advertising done, and to the personal canvass and promises held out to students that by taking the course they would be able to improve their position. A witness, who had sold scholarships for a Correspondence School at one time, said that he thought the courses good, and that those who take them up derive much benefit if they persevere. He stated, however, that it was not as

good as having a school near at hand where the student can get in contact with the teacher. Another point mentioned was that the Correspondence Schools cover a large number of subjects, and it would be difficult to offer such a choice in any technical school, even in large centres.

Many young men in Fort William who are taking Correspondence Courses in mechanical drawing, etc., would gladly pay the same money for evening classes, and would get on twice as fast. It was stated that several hundred young men there were taking mechanical courses at about $100 each.

SECTION 2: CORRESPONDENCE COURSE OF THE INTERNATIONAL TYPOGRAPHICAL UNION.

Mr. R. J. Stevenson, as a member of Toronto Typographical Union No. 91, appeared before the Commission to express the views of his fellow-workmen as to the advantage of technical education to their craft. Believing that it adds materially to the progress of any country to have its workmen attain the highest standard of proficiency, he thought he best could serve his brother members by drawing attention to the technical education course which the International Typographical Union has provided for printers, both union and non-union, as well as apprentices, of Canada and the United States.

The Typographical Union's long and fruitless agitation to preserve some semblance of a real apprenticeship system taught it that the education of apprentices was no longer possible in the average printing office. These were becoming specialized; hence the necessity of graduated specialists. It was largely a figure of speech for employers to say they would thoroughly "teach" a boy the printing trade. With few exceptions they could not if they would, because they lacked the facilities.

The boy would be turned over to a foreman or superintendent, who is always harassed with demands to reduce the cost of production, and who in turn is ever urging those under him to greater effort to meet the demand for an increased output. Hence it is not surprising that the foreman's chief desire is to discover how the boy can be used most profitably. If the boy shows special aptness for some simple operation his "apprenticeship" too often consists in doing that one thing. If he acquires a general knowledge of the trade, it is as best he may by "rule of thumb," for woe betide the journeyman who puts on his work-ticket, "30 minutes consumed showing Johnny the 'how' and 'why' on the Jones Brothers' job." If fortunate, this warm-hearted journeyman would be warned that he was there to produce the goods, and not to instruct apprentices how to do it. If not so fortunate, and he still persisted in taking an interest in the tuition of the apprentice, he would be laid-off, as his work ticket would not show the results the firm expected.

This system has been producing so-called "specialists," and some are inclined to say it is all right in an age of specialists, as they point to the lawyer or physician who has had unbounded success by following a specialty in his profession, forgetting that the physician is first well-grounded in the principles and practice of medicine, and the attorney in the practice of law, before selecting their spe-

cialties. The workman just described may be a specialist at his trade, but it is because that one operation is the extent of the knowledge of his vocation.

While the old apprenticeship system was decaying, the quality of the printed page was improving, owing in a great measure to the influence of commercial artists who design work to the last detail, which the artisan copies with more or less fidelity.

In December, 1907, a technical educational commission was appointed by the Typographical Union to enquire into and formulate the best means of imparting instruction to the printers of the United States and Canada. After a careful inquiry into various methods, the commission reported that a technical course by correspondence was the best method. Owing to the fact that printers were scattered all over the North American continent, in order to give the man located in the country hamlet the same advantage as his brother located in the large printing centre, none other but a correspondence course could reach them all.

The "Inland Printer"—the craft's leading trade journal—having, for a number of years, conducted a technical school under the auspices of the Union, and made it financially successful, the commission decided to affiliate therewith; and after revising the subjects and system then in use, they began, by the correspondence method, to teach craftsmanship scientifically—to expound the principles of design and of color harmony.

In order to place the course within the reach of every printer and apprentice on the continent, the Typographical Union decided to bear all costs of advertising, etc., to the extent of some $15,000 a year, so as to give the students the benefit of the course at the nominal fee of $20.00. The course is known as the "International Typographical Union Course in Printing." In six months after its inception, 400 students were enrolled, and the number has steadily increased until now they number over 1,200. The students include some of the most expert craftsmen in America, as well as a few from Great Britain and Australia. The unanimous verdict of the students is that the course possesses all the merits and value claimed for it. The methods of instruction pursued are responsible for this.

The aim of the course is to teach the principles underlying good typography. On the theory that the real tools of the decorative printer are letters, the student is required to do freehand lettering. This has some commercial value, for there is a steady and growing demand for hand-lettering in high-class printing. These lessons are in the course for their culture value. The best manner of knowing the beauty and forcefulness of letters is to make them. When the student has acquired the knowledge he finds it a great help in using letters most effectively, which is the object of his craft. Many printers object, stating that when at school they never had an aptitude for drawing, but they are told that lettering is not art, but craftsmanship, and that anyone who can write can learn to letter. In this way they are encouraged, and after perseverance they make progress at a rate that amazes them and at first astonished the instructors. The same is true of the principles of design. After following the lessons the student knows throughly what is meant by proportion, shape, harmony, balance and measure.

An outline of the subjects taught is as follows:

LESSONS AND THEIR PURPOSE.

Lessons 1 to 9 treat of the various styles of letters, their formation and appropriate use, including, Roman capitals in pencil; Roman lower-case in pencil; Italic in pencil; inking in Roman capitals; inking in Roman lower-case; inking for Italic; Gothic alphabets; making cover-page design. Aside from the fact that hand lettering is fast becoming a desirable adjunct of the printing-office, the student gains necessary information regarding the proper use of letters, the laws of spacing, and acquires knowledge that aids him in mastering the next group.

Lessons 10 to 14 deal with design, balancing measures; proportion; shape harmony; tone harmony; preliminary sketches, or arrangements of lines and masses.

The principles of design are not merely the style of today or tomorrow. They are the same principles which have been found in good work ever since the invention of printing, and without which we can not achieve satisfactory results. This is the first time they have ever been expounded by printers for printers. The mastery of the preceding lessons fits the student for the proper application of what is learned in the succeeding group.

Lessons 15 to 19 deal with color harmony, which is not a question of personal taste, but of scientific fact. In order to successfully produce colorwork, or even set up a job for colors, the printer must have a knowledge of these facts, and not "guess" at what the results will be. When the student has finished these lessons he has made for himself a chart which is an authority on the contrasts, harmonies and complements of the colors the printer uses.

The benefit of the logical structure of the Course is now apparent. In previous lessons the student has been drilled in the principles underlying typography. He is now asked to apply those principles (with type or by pencil sketches, as best suits his convenience) to the everyday work of a composing-room. It should be noted that he is not following another man's style, but applying principles. His work is original—his own conception of how the principles should be applied.

Lessons 20 to 30 deal with composition, and cover letter heads, bill-heads, business cards, envelope-corner cards, tickets, menus, programs, cover-pages, title pages, advertisements.

Lessons 31 to 33 are on layouts of booklets and books; papermaking; platemaking of various kinds.

Lessons 34 to 37 deal with "imposition", i. e., the placing of pages of type in "forms" (4-page, 8-page, and up to 32-page) in proper position for printing and folding machines. While there is much in imposition that can only be learned though practice, the need of putting the exercise on paper under the scrutiny of capable and patient instructors makes this method one of the most valuable extant for learning this operation.

To illustrate the value of this Course upon students, Mr. Stevenson submitted a brochure containing samples of work done by students from various parts of the country.

As Canada has printers scattered from coast to coast, Mr. Stevenson, believing in doing the greatest good to the greatest number, asked the Commission to con-

sider carefully the claims of the correspondence method, in so far at least as the printing industry is concerned.

While the Typographical Union is recognized as a leader in the field along technical educational lines, it also holds it to be folly to erect special machinery to entice men and boys to take up trades that are already over-crowded. The usual and natural avenues of the trade open the way for a sufficiency of beginners. Some employers want to see hosts of unemployed at all times, so that the grinding of the faces of the poor may be made easier. Of course the Unions are opposed to that, as are all those who delight in seeing the relative standard of living of the masses maintained and improved. In short, the Union contends—and it knows—that while there is no dearth of mechanics and artisans, the great army of them are not as skilful as is desirable. This is not their fault, nor that of employers, but of industrialism.

In helping these to better things, the Union believes it is subserving the interests of the individual, the craft and society. That is why the printers of Canada and the United States are spending approximately $15,000 a year to advance the interests of supplemental trade education.

Trade educational schemes should be developed with the object of aiding the average man, who seems to be the object of scorn in some quarters. The Union's Commission believes that what helps him will result in the greatest good to society.

CHAPTER XLIX: SUMMARY OF OTHER TESTIMONY AS TO EDUCATION.

SECTION 1: MOSTLY AS TO ELEMENTARY EDUCATION.

General complaint was made that the public school education of the present day is not practical enough; that it tends to draw boys away from the industrial pursuits and towards the professions, while at the same time it does not turn them out adequately trained in the matter of spelling, writing, punctuation, arithmetic, and other elementary subjects.

Some witnesses expressed themselves as satisfied with the present curriculum, and considered that the education given was as good as it ever had been.

One witness said that the people as a whole require more education now than they did 25 years ago. If the schools have cost a good deal in the past, they will have to cost more to meet present conditions.

It was felt that industrial training should begin in the Public Schools, and even in the Kindergarten, Manual Training, Nature Study, School Gardening, Domestic Science, and other practical subjects being introduced in a form suited to the ages of the children taking them, from the lowest grades right through to the top. Agricultural instruction should be given to country children, and Rural Science should be taught in all rural schools.

The Normal School course should include Manual Training, Nature Study, School Gardening and Domestic Science, as well as elementary Agriculture, so that teachers would be competent to give this instruction in the Public and High Schools.

SECTION 2: MOSTLY AS TO INTERMEDIATE EDUCATION.

A suggestion was made that boys should be compelled to attend a technical school of some kind between 12 and 14, in place of the last two years of a Public School. This would meet the needs of those who for economic reasons are unable to stay at school after 14, and would qualify them better than the present system does.

Several witnesses were of the opinion that the educational system breaks down at its crucial point, viz. at the age of 14, when a boy leaves school. Those who have the means to continue their education can do so, while the rest have no facilities provided for them. Thus the tendency of the Public School is to feed the High School, and of the High School to prepare for College, as if the main object were to fill the professions. This system is wrong, because the professions are not the producers of wealth. At the same time, many young men have left Canada and risen to high positions, who never had a University education, thus proving the possibilities of Canadian youths if only their education is directed

into proper channels. It was also pointed out that the disinclination for industrial work is largely a question of social advancement, and that if a boy leaving school at 14 had opportunities provided to raise himself in the social scale, this tendency might be corrected.

The education of the ordinary boy at 14 is certainly in no sense adequate to fit him for being a leader in the occupation of an artisan. 14 to 16 are the formative years, and it is just in these years that the most progress could be made in literature, history and geography; and if the boy's welfare is to be considered, if he is going to become a high type of artisan, he should keep up the work during these years. The ideal school for that period would be a combination of the regular type of High School with the Manual Training High School. The more varied the course at this time, the more likely a boy will be to discover his vocation. The hour or more spent every day at wood or iron work would not interfere with the more 'cultural' subjects.

'Give the boy the impression that his work is the expression of his intelligence.' The school system is founded on the idea that education consists solely in acquiring information, but that is a wrong idea. Education is also training into ability to do things.

Some witnesses were in favor of raising the compulsory age for attendance at school to 16, as it was thought that at 14 a child has only acquired the 'tools of education,' and that without further training much of this preliminary education is wasted. It would pay the State to give a grant to the parents of those children who otherwise cannot afford to remain at school till 16.

A child's memory is his most active side from 8 to 12; after that age, he begins to use his reasoning faculties, which are combined with the desire for active and constructive occupations. The nature of the instruction given should conform to these stages in the child's development. If Manual Training were continued to 16, the boy would not only stay longer at school, but would be more fit, both physically and mentally, for industrial work. It is generally admitted that 14 is too young for a boy to enter heavy trades like machine shops, and therefore it would be an advantage from every point of view to keep him longer in school. One school inspector, however, doubted this, unless the school work led to some specific occupation, for which it prepared.

SECTION 3: MOSTLY AS TO CO-ORDINATIONS BETWEEN SCHOOLS AND OCCUPATIONS.

A Public School Inspector at Hamilton outlined a plan for a special 'advanced' class in the county in which wood and metal work would be taken up from the practical point of view; also an agricultural science room for occasional classes conducted by an Ontario Agricultural College man. He suggested dividing the county into districts containing 5 or 6 primary schools each and one advanced school, being a modification of the consolidated type of school adapted to the wants of the community; 12 or 15 for a county, and a School Garden at each.

One Inspector of Manual Training and one in Agricultural Science could cover the county.

All witnesses were agreed that the critical period in a boy's life is the time from 15 to 18, and that the provision of some means of training during this period was the most pressing educational and civic problem. Technical courses in High Schools, and Continuation Classes in the evening, would enable such boys to find their bent and obtain some preparation for industrial life, besides keeping them out of mischief and steadying them down.

If the schools were made attractive and the instruction complete, it might help to abate the rage for amusement and create a spirit of enterprise.

The half-time plan, as an alternative to longer attendance at school, or attendance at a different type of school during the last two years, was not regarded as feasible in many industries, though one employer expressed the view that such a system would be the most satisfactory if it could be carried out.

The general opinion both of employers and workmen was that a trade cannot be taught in any school; however excellent the training, that must be supplemented by practical experience. A combination of sound theoretical instruction with practical work in an actual shop would be the best training for any mechanical trade, and a Manual Training course at school would be a good preparation for that. Manufacturers and educationists should co-operate in the solution of these problems. One employer thought that apprentices would learn more in the shop than at any school.

The suggestion was made that the children in the higher classes of the Public Schools should be taken to visit industrial establishments and have processes explained to them. This would awaken their interest in industrial subjects, and where tried has been found beneficial, many of the boys having taken up industrial occupations. In order to derive the fullest benefit from such a course, Manual Training should be taught in the schools. Boys need to have impressed upon them the dignity and importance of labor. The Technical School should be brought to the people, not the people to the school, and technical schools should be put on the same footing, educationally and socially, as other institutions, in order to give the workman and the trades a recognized standing. Mechanics should be given every opportunity to rise to the highest positions in their occupation.

The High School curriculum was regarded as a good preparation for the Universities, but not for any other career, except in a few isolated cases. Many witnesses would like to see the course made more technical and practical, and thought that if this were done, more pupils would go to High School and remain through the course. It was stated that the present bent of High School studies does not incapacitate boys for industries, but gives them a taste for other pursuits.

One School Inspector stated that the High School offers courses that a boy of 14 to 16 could take who wishes to become a skilled worker and learn a trade at 16.

Several witnesses thought the Government armories should be used for technical classes, as they have to be heated and cared for, so that the expense would be very small.

Suggestions for giving industrial training to those who have left school included the establishment of Evening Continuation Schools, combining theoretical

and practical instruction, and in rural districts including agricultural instruction. Possibly boys who will not stay at day school might be more willing to attend evening classes, and thus continue their education, and such classes would be most beneficial to this class of student.

Boys ought to have an opportunity to acquire knowledge that would put them in line for something that would be useful to them in their occupation. Such classes would also exercise a wholesome moral influence.

Several witnesses spoke very emphatically of the need for technical education to train Canadian workers, as at present the higher ranks of industry are recruited from the Old Country and the United States, and as these outsiders have a more thorough training, it results in Canadians becoming hewers of wood and drawers of water under men from other places. 'Our boys are not trained for anything in particular—just to carry the burdens; our trained men come from outside.'

This question is one of national importance, and it was thought that the Dominion Government could most suitably help by the provision of educational facilities for industrial workers, to build up Canadian prosperity. Workers move about to all parts of Canada, and their training affects the prosperity of the whole country; therefore it should not be left to localities. Industrial training is a strong factor in the direction of nation-building, and properly qualified artisans and process workers are a most valuable national asset.

SECTION 4: AS TO THE TRAINING OF TEACHERS.

The dearth of teachers was generally deplored, as a hindrance to the development of industrial training both in the Public Schools and in other forms of technical education. The reason given was the lowness of the salaries offered, which fail to attract teachers. The Faculties of Education at Queen's and Toronto Universities train those with University degrees for 1st class certificates only; the Normal Schools train the rest of the teachers for the Province.

More Manual Training, Domestic Science and School Gardening is now being given in Normal Schools, and teachers are qualified to give instruction in these subjects. An improvement is already noticeable in the rural schools, which now have more instruction regarding common weeds, etc. than was formerly the case. If these subjects become general in the Public and High Schools, it will be easier to give them in the Normal course. Nature Study trips and laboratory work in connection with botany and rural science are undertaken.

Nature Study and School Gardening not only give enjoyment to the pupils of the Public Schools, but would add efficiency to the work of the Normal Schools if would-be teachers came up with some experience and interest in these subjects. The problem rests more on the teacher and the training than on anything else. Teachers should be fairly well trained in the sciences which go to elucidate and substantiate all agricultural science. The High Schools and Collegiates should provide that. Then, after the High School, they should have courses in which agricultural science is emphasized. They will undertake it more seriously at this time than at any other, when they looking forward to becoming teachers.

The 3 months' course at the Ontario Agricultural College at Guelph is very beneficial, but it is not enough. The important thing is that the Nature Study and School Garden work should be continuous, through the Public, High and Normal School courses, so that the interest is not lost. In the interests of the teachers themselves, of the country at large, and of rural life generally, it would be a good thing to make it compulsory for all 2nd class teachers to go to Guelph.

If adequate instructors were available, instruction could be given in the Normal Schools to train teachers of industrial subjects, and it would be an advantage to have these subjects taught in the same building with the others.

SECTION 5: AS TO THE VIEWS OF MANUFACTURERS.

There is a consensus of opinion among manufacturers that Technical Education is necessary for the maintenance and improvement of their businesses.

A training in mathematics and science is a splendid preparation for a boy who wants to work his way up to the position of foreman in an electric company; and one employer stated that he would give the preference to such a boy every time.

The High School is a valuable adjunct in the training of mechanics. Graduates of Trade Schools and Trade Courses should work in the shops at least a year before regarding themselves as journeymen. The trouble is that they often think they know more than the journeymen.

The half-time system would be good if a thorough academic education in the High School could be combined with industrial work for those wishing to take up such occupations.

It was felt that a Technical School would require exceptional teachers, in constant touch with commercial and manufacturing interests. What many employers need are experienced men rather than mechanics. If necessary, manufacturers would be willing to provide technical instruction for their men themselves, and the view was held that this would be more advantageous than establishing technical classes outside, as a boy in a school is apt to learn many things which he will never require, while in a manufacturing plant he only learns what has a bearing on his work. The instruction can be better correlated in actual shop conditions.

The President of the Board of Trade, Toronto, said that the teaching of the schools was too much about the heroes of war, literature and art rather than of industry and commerce. Children should be taught how and by whom wealth is produced and distributed.

Technical Education applied to the theory of steam engineering and boilers would save a large amount of coal bills and make for cleaner cities by the suppression of smoke.

A system of Technical Education would lend itself readily to the specialization of to-day.

Technical Education for engineers and electricians would add speed as well as efficiency to the mills.

SECTION 6: AS TO GENERAL CONCLUSIONS OF WITNESSES.

The general conclusions presented in the evidence are:—(1) That the present school curriculum is not suited for children who will earn their living in industries;

(2) That this fault can be, and is being, remedied in part by Manual Training, Nature Study, Domestic Science and (in rural schools) Agriculture and Rural Science with the use of School Gardens; by encouraging children to use their hands as well as their heads, teaching them the dignity of manual labor, and awakening their interest in industrial occupations;

(3) That the curriculum is too crowded, and that it would be better to teach fewer subjects and those few more thoroughly, and to give a larger place than hitherto to manual occupations in school;

(4) That education with an industrial bias should be given, either in the Public Schools or at other institutions, to boys and girls over 12 years of age, to enable them to find their bent and give them some preparation for industries; and in order to secure longer attendance at school, the courses must be made more attractive and more practical;

(5) That Evening Continuation Schools should be provided for those unable to attend any form of day classes;

(6) That the half-time or part-time plan, whereby apprentices and other learners would receive instruction in the day time rather than at night, is regarded as a desirable solution, though in some cases as impracticable;

(7) That industrial training and technical education—that is to say vocational education—should be given from the Kindergarten right up to the highest grades of the High School;

(8) That all grades of education—cultural, industrial and technical—should be linked up, and technical schools put on an equality with institutions for academic instruction, in order to raise the status of the industrial worker, both socially and educationally;

(9) That Technical Education is a matter of urgent national importance, and should be assisted by the Dominion Government.

CHAPTER L: THE UNIVERSITY OF TORONTO.

SECTION 1: INFORMATION OBTAINED FROM Dr. ROBERT A. FALCONER, PRESIDENT.

This is a Provincial University, maintained partly by Government grant, partly by endowment (a very small amount) and partly by fees from students. The Lieutenant Governor in Council appoints the Board of Governors, who control and direct the University. It is a State University and the Governors must report every year to the Provincial Government.

This University is more than a teaching body, inasmuch as all teaching of the highest order must be accompanied by research. It is an examining body for some degrees—in medicine, agriculture, and one or two others. Its work almost entirely is as a teaching body. A great many of the professors carry on research work, though there is no special Faculty of Research. The authorities believe that teaching and research form the proper combination—that a good man for research would be profited by being a teacher, and that the teacher should do research work. Such subjects as have a bearing on technical efficiency for research work would decidedly help a man to teach better.

Unique University System.

Dr. Falconer considers the University system in Toronto unique. It is a great University system, with federated Universities and Colleges connected with it. The University consists of the University itself, University College, Victoria College, Trinity College—which are federated Universities; St. Michael's College, Knox College, Wycliffe College—which are federated Colleges; then there are a number of affiliated institutions such as the Ontario Agricultural College at Guelph, the College of Pharmacy, the Veterinary College, the College of Dental Surgeons and perhaps one or two others.

The University itself consists of the Faculty of Arts, the Faculty of Medicine, the Faculty of Applied Science, the Faculty of Household Science, the Faculty of Education, and the Faculty of Forestry. The Faculty of Art consists of two parts—the courses that are conducted by the University Professors, and the courses that are conducted by the College Professors. Of these colleges there are three—University College(the only one under State control), Victoria College, (the Methodist College), and Trinity College (the Anglican College).

What The Colleges Teach.

All these colleges teach the languages, except Italian and Spanish; they teach Latin, Greek, French, German, Oriental languages, English and Ethics; and all the under-graduate students in Arts must be registered in one of these three col-

leges—either University College, Victoria or Trinity, and those students take their language subjects chiefly in their own colleges, coming to the University for all other subjects for their undergraduate courses—Philosophy, Political Science, History, Economics and all the Sciences. They all have equal rights there; one fee gives them the privileges of the University.

Function of the University.

The University through its Senate sets the curriculum, appoints the examiners, and confers degrees. This unique system of federation is working admirably. It leaves denominational control to colleges that desire it, yet gives them the privileges of public education, while at the same time the State College (University College) stands alongside and does its work. Then, of course, all the post-graduate work and the research work, particularly undergraduate B.A. work, is in the control of what is called the University itself.

Faculty of Applied Science.

The Faculties of Medicine, Applied Science, Household Science, Education and Forestry are all independent Faculties of the University. The University College control is entirely in the undergraduate work in Arts. The federated colleges have no examinations; matriculation is the same for all; their students are University students and must all pass the examinations of the University, on which, of course, the colleges have examiners.

None of the students in those federated colleges take any course in Applied Science. If they are going into Applied Science they are not enrolled in any college, but in the Faculty of Applied Science in the University of Toronto. Hence there would be no need of this Commission making any enquiry as to the work of those federated colleges.

Growth in Faculties and Students.

There is only one medical school in Toronto; that is the Faculty of Medicine in the University. In 1897 there were at least two. At that time also the School of Practical Science was under its own control, directly responsible to the Government. All this has been changed, and the whole system has been unified by the Act of 1906. New departments have been added comparatively recently—those of Household Science, Forestry and Education.

In 1897 there were in three departments—Arts, Medicine and Applied Science—about 350 students. Between 1897 and 1908, these new Faculties coming in, the number of students rose to 3500. In the year ending June 30, 1910, there were 4044 students; so we have added 500 students in the last two years to the University, all under instruction.

Connection With Agriculture, Veterinary and Household Science.

The University has affiliation with the Ontario Agricultural College at Guelph, which is under the Agricultural Department of the Province. While the University has nothing at all to say as to control, it provides the degree of B.S.A.

(Bachelor of Science in Agriculture) on the four years' course, accepting the first two years' work of the Agricultural College as sufficient earlier training. The degree is granted on the basis of the student's last two years, on a course set and examiners chosen by the University. That is all the connection between the College and the University.

A much more intimate connection exists with the Veterinary College in Toronto, which is affiliated with the University. By special arrangement those students attend University College for special instruction in three leading sciences: Physiology, Chemistry and Botany. The University gives the degree of Bachelor of Veterinary Science on a three years' course which they outline, the instruction on professional subjects being given in the College.

The College of Household Science is one of the Faculties of the University, and absolutely under its own control, as is also the Faculty of Forestry.

As To Technical Education.

Dr. Falconer did not believe the University did any Technical Education in the sense that the Commission, as he understood the Commission, had in mind, though he might be mistaken there, because of the difficulty of distinguishing—if there be a distinction—between what is called technical education and the preparation of professional teachers for technical schools. The University education in the Faculties, and partly in Arts, is called professional education; it requires matriculation standing, and is distinctly professional education. True, the professional education in some of those branches is more related to industries than the professional training in other branches, but it could not be said that there is any distinct difference in the grade and quality of the education between the Faculty of Applied Science and the Faculty of Medicine, or between the Faculty of Medicine and the Faculty of Forestry. They are all distinctly higher education of the professional grade, for which matriculation is required, and for which certain High School training is naturally required. Although some departments lean more than others towards industry, they had never been classed under the term "Technical Education."

Dr. Falconer believed that the University always must be in very close touch with what might be called Secondary Education. The Commission's great object, as he had it in mind, was the investigation of Industrial Secondary Education. He believed the preparation for Technical Education—if it can be divided on its technical side—is carried on very thoroughly in the University.

Unquestionably, a great many additions must be made, e.g. in metallurgy and ceramics and other departments of industrial education; but so far as the work went he believed that this higher education was being thoroughly well attended to. While he would not like the impression to go abroad that their facilities and opportunities for education in the higher branches are quite adequate,—because he believed that the University had to be developing constantly about the new industries of the Province, that before long must be developed—yet he maintained that the training in the various branches of Engineering—Civil, Electrical, Mechanical and Chemical Engineering and Architecture—6 or 7 branches

of what we call Applied Science of the professional grade, will compare favourably with the same training in other countries—the United States or elsewhere.

Research Work Part of University's Duty.

Higher research work is only developing, because the Univesrity and the country have grown so rapidly that the money was not available, but all the professors ought to be and are engaged in more or less research work—steam, water power, everything of that kind. That is recognized as part of their duty, and it should be enlarged and is to be enlarged.

One instance of that is shown in this, that when the Dominion Commission on Conservation of Natural Resources was established, the University at once wrote to the Chairman, Mr. Clifford Sifton, and told him that they would be glad to co-operate in any way possible with that Commission; that the departments and laboratories would be at their disposal for research into any of the Dominion's natural resources—coal, iron, steel, forestry; and that the University would unhesitatingly co-operate in any movement of that kind to the limit of its ability. The University's offer was accepted, although nothing has yet come of it.

The University carries on post-graduate work quite extensively; there is post-graduate and research work going on in a great many departments; in fact a great many professors are doing research work constantly.

Problem of Secondary Technical Education.

Unquestionably the University must grow, and must have more money to develop professional training, but to Dr. Falconer's mind the great problem in Canada now in respect of Technical Education is to meet the situation as regards Secondary Education.

While the University has no practical direct connection, he had thought a great deal about its relations to this new movement. It is a very difficult matter to know just what the University could do, or how. The University is related to the ordinary Public School and High School system of the Province, because they train for matriculation into the University. Practically four years of preparation in the High School were required for entrance into the University; and it had seemed to him that the development would come in the establishment of other schools—trade schools, that would train for the various industries. He was looking forward with a great deal of anticipation to the question of the relation of the University to such schools—how the University could help the movement forward; how the schools would in turn be related to the University. Perhaps the movement itself has not been sufficiently formulated yet to determine these questions.

University's Offer to the Grand Trunk Railway.

After a good deal of thought the University made an offer last spring to send up for the summer one of its most efficient men in Applied Science to give instruction in steam to the apprentices in the shops of the Grand Trunk works at Stratford,

with the object of securing information as to how that work could be done, the kind of instruction to be given and whether the University would be able to co-operate in any way. All the arrangements were fulfilled on the part of the University, but the Grand Trunk officials at Montreal would not sanction the arrangement, so nothing was done. As the University is under the Provincial Government, they might consider another agency better fitted to do that work.

Training of Technical Teachers.

It is possible that as time goes on the University might be able to provide training for the teachers who would conduct that Secondary Industrial Education. Those teachers should be men thoroughly trained in scientific principles and the applications of science; they ought also to understand the principles of teaching; to appreciate the point of view of the manual worker and be in sympathy with him. This is a very difficult class of men to get, and one of the most serious difficulties in Technical Education is that of securing the right kind of teachers, efficient and sympathetic. The University Faculty of Education trains teachers for the High School and the upper classes of the Public School; and he felt sure it would be willing to endeavor to meet the public need when it arises. They must first know what is wanted; but that is really for the Government rather than for the University to decide. The preparation of such teachers as Secondary Technical Schools might need is a very distinct and important work.

As to whether the University would or could give a short course, say three months, for such men as had acquired skill and knowledge through contact with industries and works, who might be available as part-time instructors in Technical Schools or trade evening schools, all he could say was that the University would always be ready to endeavor to meet the public needs, and to try and meet them in the best way possible.

Teachers for Mining.

On being asked whether those now trained in the University have qualifications for becoming teachers in the Secondary Schools in places where mining is an important industry, Dr. Falconer replied that a teacher is a very difficult man to make; a man may be a thoroughly good mining engineer, and yet not be able to teach at all. There is the crux of the problem—to get such a combination in order to have thoroughly good teachers. The fact that a man has graduated in mining and knows his work is no reason why he should be a good teacher, though there is a fair proportion of them being trained, just as in any other profession.

Secondary Education calling for services of such teachers being a matter of policy for the Government to determine—because education rests with it—he could not speak for what the Government would do, but the University would like to co-operate as far as possible, and anything the Government required they would be happy to do. He thought it would be more advantageous to the State to have in the Secondary School a thoroughly well-trained teacher, than a man who knew only the practical side, and was quick at mining operations. What is wanted is

to raise the intelligence of workmen, make them masters of themselves, educate them so that they will know what their faculties and capabilities are, so that instead of coming to a dead line at 20 or 30 those men will grow. That is a practical education.

What Is "Practical Education?"

Of course there is sometimes a difference of opinion as to what has educational value. We often hear education spoken of as if practical education is what is required; but the point is, what is practical education? Practical education is not giving a lot of mere dead facts which a man has to have pat, and at the end of which he is finished; practical education is developing the man so that he can grow and enter into larger opportunities as they present themselves. That is why we have to be very careful in any curriculum that is laid down for any system and any teacher of any kind. It is the efficiency of the individual that ought to be aimed at for the branch of work he is in.

The witness was perfectly sure the University would meet as far as possible the needs of the country within its sphere; but the University cannot be expected to go outside its sphere to do work that it could not properly do and has not the means of doing because it has not the income. He believed the teacher problem is going to be one of the biggest problems in Technical Education. So far as the University could do it, it would train those teachers, but he could not say how far it could go. It might be in an institution of Normal School grade that the teachers could best be trained.

Applied Science, Forestry, Mining, Fisheries, Etc.

The University carries on a great deal of work in the Faculty of Applied Science that has a bearing on the leaders of technical activity.

The Department of Forestry will have a very decided bearing on the conservation of the forests and the giving of employment to our people. Dr. Fernow and his staff have been doing a great work in that.

The Mining Department is growing; a larger number are going into Mining this year than ever before.

The University has also some forms of instruction that would help leaders in the fisheries. There are three stations—at Georgian Bay, at St. Andrew, N.B., and at Esquimalt, B.C., in which there are laboratories for the study of marine life; and every summer members of the staff are in each of those laboratories studying the marine life of the district, and the fisheries also. That is in connection with the Department of Marine and Fisheries at Ottawa.

University and Secondary Education.

The University ought to be very closely in touch with every branch of Secondary Education, and members of the Faculty of Applied Science have talked with the witness over this whole question.

In regard to the wisdom of a policy that would lead towards what might be called the centralization of Secondary Technical Education in a few places in

a big province like Ontario, he did not like to speak off-hand; the question was more for the Department of Education; but the Normal and Model schools are already arranged for training teachers in certain grades of schools. Whether that can be developed on these other lines is a question the Commission would have to investigate.

The only policy for the University would be that teachers of the highest grade only should go there, because the laboratories were in constant use for seven or eight months of the year, and some of them all the year around, and the work would cost more there than elsewhere, except for the teachers of the highest grade. The University cannot do the work of Secondary Education; it is not equipped to do it; it would be unduly expensive; it has not the staff to do it; the men are not trained to do that kind of work.

How the University Could Train Technical Teachers.

However he did not see why the University which trains teachers for the High Schools should not take a share also in training certain classes of teachers for Secondary Technical Schools to do that kind of work and to be leaders there also. There could be a laboratory room for the highest grade, which would practically be the same grade as is there now. We cannot afford to have an immense movement of this kind led by any but the most thoroughly trained men, and they would have to know the meaning of science in all its applications.

But as to developing a system for the training of teachers for those Secondary Schools of a technical character, he did not wish to trench upon another department. The question was really for the Department of Education, which in the case of High School teachers determines that their teachers shall come to the University to get that training. Presumably the Government, which has education so directly under its own control, would determine how this Secondary Technical Education would be carried out, and where its teachers would be trained. While he could see a chance, and a very fine chance, of teachers of the highest grade being trained in Universities, it was not for him to say whether that is what should be; it has to be thought out very fully.

Preparation Necessary For University.

Sometimes applications come from men who wish to enter the University without matriculation standing. The question of making entrance requirements more elastic often comes up, but it is a mercy to anyone to tell him at the beginning, "You ought not to go unless you are able to understand the work that is being done."

For instance, the course in Applied Science is very largely based on mathematics and physics. Now, if a student comes to take that course and does not understand a fair amount of mathematics and physics he is simply handicapped so that he could not go ahead. He would have to have that preparation; he would have to get it somewhere; because after all these are basal subjects. If a student does not understand them, the principles of steam and of water power and a great

many other things will be unintelligible to him; after all, they are applications of fundamental science that he must understand. That is the reason; that is the explanation.

What Leaders Should Know.

If a young man has the necessary fundamental knowledge of physics and mathematics, the University requires junior matriculation in English. That is not very hard. He requires only one foreign language like French or German, which is not too much for a man, who is going to be a leader in any industry, to know. Then there would be Canadian and British History. The amount of extra work involved in Junior Matriculation, beyond advanced mathematics and the sciences (chemistry and physics) and English is not very much.

A knowledge of Canadian and British History is not absolutely essential for a man who wishes to follow the career of electrical engineer, but what we are aiming at is this: that man as an engineer is going to be a leader in the community; and as a citizen, he ought to have an intelligent knowledge of and interest in his country. There is where we believe that a certain breadth of education is essential. If we turn out a lot of men who simply can do certain things, we are going to turn out a lot of the narrowest men that live. We want to turn out men who are going to be citizens, and use their profession in their citizenhood; they are going to take an interest in the State in which they live. It is not merely professional men we are turning out, but professional men competent to take an intelligent interest in citizenship as well.

The Resources of the University are Limited.

People think we have a great deal of money in the University and can do anything we like, but as a matter of fact we are very hard up. With absolute confidence it can be said that we are far more undermanned than almost any large University on this Continent; and we cannot undertake to do more than we can handle with our staff. Such opportunities as that suggested ought to be provided where they can be best done at least expense. Whether we can do it best and at least expense to the Province in the University, or whether it could be done better in some other institutions like the Normal School is a question to be worked out.

SECTION 2: FACULTY OF APPLIED SCIENCE OF THE UNIVERSITY OF TORONTO.

Information obtained from Professor John Galbraith, Dean of the Faculty of Applied Science, University of Toronto.

The Faculty is divided into 7 Departments. The work is adapted to different professional vocations:—(1) Civil Engineering, (2) Mining Engineering, (3) Mechanical Engineering, (4) Architecture, (5) Analytical and Applied Chemistry, (6) Chemical Engineering, (7) Electrical Engineering.

Every one of the students is preparing for work indicated by the names of those Departments. All in the Department of Electrical Engineering are preparing for the professional practice of that vocation, and none for teaching. The student's time is spent between laboratory and lecture work, with a large amount of the former. When a student graduates from the University as an electrical engineer he has been merely trained to become one.

All who can get work in their profession during the summer months do so, and the majority do practical work, and thus make more progress not only in their University work afterwards, but when they come to practise their profession.

Mere book learning is almost worthless; merely learning from a book or from a teacher how to do a thing is worth very little; it is only by doing it himself that it is impressed upon the student, and that he really becomes in any way expert. He forms and re-forms, modifies his ideas as he goes on; in other words, learns the relation of the teaching to the work of his life by having that little experience in his vocation.

"Options" A Serious Obstacle.

As to the school course of a student preparing for this work, the conditions laid down by the University for matriculation or entrance are governed by a good many different considerations, only some of which apply especially to this University's work. One great consideration is what the High Schools can do, and what they actually do. If we had our own way we would no doubt alter, to some extent at least, the condition of the entrance; but to alter them under the present conditions would possibly be worse than accepting what the University has agreed upon generally to accept; on the whole it is perhaps the best possible under Canadian conditions.

Speaking as one who has had more or less experience on matriculation boards, Dean Galbraith was simply astonished at the difficulties involved in the question of High School options allowed to students. At present the different Faculties of the University as a whole allow practically the same options. A fairly wide selection of studies is given and students can take one or the other among these.

It is one of the most difficult problems relating to the question of University entrance. Nobody is satisfied, but apparently we have reached the best solution possible under present conditions. It is not by any means ideal; it is simply practical.

University Forced Into Elementary Work.

The very fact that some students have not taken the elementary or High School work in certain subjects on account of the options produces one of our great difficulties here, by forcing the University to maintain elementary classes in a great many subjects. These would not be necessary if there were no options. It is one of the great difficulties in unifying the classes at the beginning and bringing them into the same educational stage for the work.

For instance, under present regulations some first year men are taking for the first time chemistry and physics; other men are taking for the first time languages —

French and German—because one of those is put as an option against the other. Hence the University has to teach elementary French and German and elementary chemistry and physics. That is just an illustration of the effect of the option.

On the other hand, the Dean would not like to see a fixed curriculum for entrance, because he feared the results might be worse than they are. Not simply the University of Toronto, but all the Universities are familiar with all these conditions, and have tried to make the best compromise they could.

Familiarity With Trades Essential.

In this Faculty, though the main part of the training is for those who are to follow professional occupations, and not to go into actual craftsmanship at all, it is considered absolutely necessary for all men taking up engineering, architecture, etc., to be as familiar as possible with the work carried on by every trade involved. There may be a dozen different trades that a civil engineer must be familiar with, while the students are all more or less familiar with architecture, which involves any number of trades. It is practically impossible that a professional man should get his knowledge of those trades in the same way as a workman, because that would take up his life; and though his work as an architect is extremely different from that of the craftsman, yet it demands a knowledge of the trades. The only way he can get that knowledge is to keep his eyes and ears open and study those trades while practising his profession. While he is young he may go into them.

Summer Work at Trades Encouraged.

Some of the men have gone into pick-and-shovel work, that is not called a trade at all, and kept at what one might imagine did not require any particular training, or anything but muscle. They are encouraged to go into trades in the summer and do anything at all in a trade related to their profession; they must do it if they are going to know their profession. By learning even one trade a man can acquire the kind of knowledge an engineer needs that will help him for all the trades he has to do with. A civil engineer has to specify masonry, and therefore must know all about it as far as specifications are concerned. He must specify iron work, and must know all about iron. He must know all about every material he has to deal with, and an engineer cannot know too much about the trades involved in his professional work. All this work necessary to the engineer has to be gained outside. No matter how important, it is impossible to teach that here, for the expense involved would be perfectly enormous, and puts it out of the question. Something must be left to the man himself.

Not Training Technical Teachers.

This Faculty is not now training men who could be teachers in Secondary Technical Schools. If either day or evening schools of that grade were started in a good many places where industries are numerous and important, and if men who were successful foremen, who knew the craft and the practice as well, needed instruction in principles, this Faculty would perhaps be the place for them

to get short courses temporarily, until the system of industrial education had been worked out.

The system of elementary and secondary schools has been worked out in a way so that the University is not obliged to do elementary work in professional engineering schools, at least not the new part of that work.

Now, professional men and tradesmen have different points of view. For instance, machine shop work is looked upon by the engineer as one thing, but by the machinist as another thing. So teaching for one cannot quite fit the teaching for the other. In this building we have machine shops. A person who could not recognize the distinction between those things would say, "You are apparently teaching a trade." No, we are doing nothing of the kind. We cannot make use of those things in the same way as we should if we were teaching a trade; they are for a different purpose altogether.

Difference Between Trades and Professions.

To put it clearly by an example: Time and again visitors have asked "Do you teach men to run engines?" The answer is, "No, we don't do anything of the kind, although we have engines here." When they ask, "Where can I get a knowledge of how to run an engine?" They are told, "Go as a helper into some place where they use an engine, and learn from some one there." That is not our work; we have to do other work with that same engine.

Thus a totally different use is made of the same thing. We teach the things that our engineers in their professional work must know, but which the machinist may or may not know—which is not really necessary for his work.

Different Kinds of Expertness.

The only objection the Dean saw to the University giving short training courses to technical teachers was the practical objection that the Faculty is short handed as it is; that students are numerous; that enough money cannot be had to do justice to what the curriculum calls for. Moreover, it would be a mistake for the sake of entering into quite a different class of work, to pretend to be able to do it. His feeling is that no teacher can teach, in the industrial and engineering things, what he cannot do; he must be an expert in the thing that he is teaching.

The expertness to train a man as a machinist is apparently different from the expertness required with the same material to train a man as an engineer. Taking as an example the machinist's trade, with which he was more familiar than any, they require a man who is to be a successful teacher of that trade to be experienced in the department of it that he proposes to teach. He cannot be an all-round man, even as a machinist; he must select some part of it; he is not an expert in every part of the machinist's work; but he ought to be an expert in what he attempts to teach. Then, here is the trouble; if the student is to improve and be raised higher up, so to speak, than has been the case previously, that man ought to teach something else besides the mere hand-work of his trade; he ought to teach what is called technical or industrial science connected with that trade.

Qualified Teachers Must Be Trained.

Now it is going to be an extremely difficult thing to get the qualified teacher. He is not in the University; he is not in the trades, he is nowhere; he is non-existent as a rule, and that is what makes the whole difficulty. The time will come when by co-operation of the University and High School—those who know the sciences and those who know the trades—there will be a product in the form of a young fellow who knows his profession, and who, if he has a liking for teaching and can be tempted into it, will make a better teacher than ever. But it is going to take time in Canada for us to produce those young men. Now we are in a transition state and must do the best we can.

How Technical Teachers Might Be Had.

Dean Galbraith sees a possibility in some trades of securing teachers who combine scientific training with craftsmanship. Among the students a fair percentage of men have been through several of the different engineering trades, and intend to become engineers (as the profession understands that word), but they are good tradesmen. If technical schools were started he would try to pick up some of those men who had an inclination to teach, which was a harder thing to get than men who have the other two qualifications, for if there is one thing that the graduates don't want to follow it is teaching.

One reason alleged for the great number of students coming into engineering work is that it offers a better chance than teaching. They look upon the Faculty of Arts to supply teachers for the ordinary schools and probably not 2% of the Applied Science men are at present engaged in teaching, because all their training has been here for their other work, and they got nothing in pedagogics or anything relating to methods of teaching. But if such men were needed outside of the thing they were ambitious to do, they must be offered the pay that would bring them; that was the only way. He thought such men as he had indicated would have no objection to teaching if their chances in life were good enough; he wouldn't say merely their immediate remuneration; but as they had fixed upon another ambition the difficulty was to turn them from it. Many of these men would go four years with very little. He had known some of them to spend a year just for the sake of experience, earning nothing. You cannot tempt a man like that into teaching if he does not like it, at even the same salary he is getting. That is the spirit the Faculty tried to encourage. The Dean was free to say that they did not encourage any of their men to go into teaching; they did not want them to do it. While it might be a great benefit to this movement, they were all looking after themselves, and not the movement. Still, if it could be made worth their while, he had no doubt teachers could be found. Other countries like England and Germany, found teachers, but they were not common in Canada. He understood that in England those teachers were working for very small pay, such as the men in Canada would not look at.

CHAPTER LI: QUEEN'S UNIVERSITY AND THE SCHOOL OF MINING AT KINGSTON, ONT.

SECTION 1: INFORMATION OBTAINED FROM Dr. DANIEL M. GORDON, PRINCIPAL OF QUEEN'S UNIVERSITY.

Those students who are being trained for any one calling find a great advantage in coming into contact with those who are being trained for other callings. It is distinctly broadening to the men on each side,—the ministry or law on one side, and science on the other,—that they should come in contact with each other while at college. Even if a student is not taking classes in the Arts Department he gets broader views of education generally by coming in contact with those who are taking such courses and he is thereby made a more competent leader of men when he himself leaves the college. Whatever is done to advance industrial training or technical education for a certain kind of workers should not be accounted hostile to other kinds of education. All classes of workers need training suitable for their occupations, and at the same time it is a great advantage for each to be familiar with the training that other men are getting. All would admit that the President of the American Society of Engineers was correct when he said in his address two years ago that what engineering required today was educated leadership,—by which he meant a broader culture than is very often given in distinctly and exclusively technical schools. Similarly it is of great advantage to those who take the Arts training that they should know something by personal contact with the men who are taking technical training.

The School of Mining.

The School of Mining is a branch of the *School of Mining and Agriculture*, incorporated by Act of the Legislature of Ontario. It is affiliated to Queen's University, which confers all degrees.

Objects—The objects of the School of Mining are to give a thorough scientific education, both theoretical and practical, to men studying for the profession of the mining, civil, electrical, mechanical, chemical, or sanitary engineer, the assayer, the consulting geologist, and the metallurgist; and to provide for prospectors, mine foremen, and others interested in the discovery and winning of minerals, such instruction as shall make their occupations more interesting and less liable to failure.

Situation—The School has been placed near Queen's University so as to take advantage of the instruction therein provided in mathematics, English, French, German, and the economic and biological sciences. It is in this way possible to equip and carry on a first-class technical school on a much smaller revenue than would otherwise be called for to maintain the high standard of scholarship which the age demands of the engineering profession.

DEGREES AND COURSES OF STUDY.

The following courses are offered:

1. Three years' courses for a diploma.
2. Four years' courses for the degree of Bachelor of Science (B.Sc.) in:
   - (A) Mining Engineering and Metallurgy.
   - (B) Chemistry and Mineralogy.
   - (C) Mineralogy and Geology.
   - (D) Chemical Engineering.
   - (E) Civil Engineering.
   - (F) Mechanical Engineering.
   - (G) Electrical Engineering.
   - (H) Sanitary Science.
   - (J) Power Development.
3. Six years' courses for the degrees of Bachelor of Arts and Bachelor of Science (B.A., B.Sc.)
4. A Candidate for Graduation must have completed either a four or a six years' course and have passed all the required examinations.
5. Certificates of standing may be obtained on application to the Secretary.
6. The degree of Master of Science (M.Sc.) is granted to candidates who have graduated as B.Sc. and thereafter:—

a. Have practised their profession for at least two years (one year of which must have been responsible engineering or scientific work.)

or *b*. Have spent at least one session in attendance after graduation as B.Sc.

In either case the candidate must have carried on research work, the results of which must be submitted, on or before March 30th, in the form of a thesis satisfactory to the Faculty. The literary as well as the scientific quality of the thesis is considered.

7. The degree of Doctor of Science (D.Sc.) is granted to candidates who have graduated as M.Sc. or have otherwise satisfied the Faculty of their ability to proceed, and have thereafter fulfilled the conditions.
8. B.A. and M.A. courses in Chemistry, Assaying, Mineralogy, Geology, etc.
9. The Diploma or Degree in Mining Engineering or in Civil Engineering of the School of Mining, Kingston, is equivalent to the "diploma as Civil engineer" mentioned in clause III of the Dominion Lands Act; so that a candidate for D.L.S. having that diploma from the School of Mining is entitled to examination after one year's service with a D.L.S.

SECTION 2: INFORMATION OBTAINED FROM Dr. WILLIAM L. GOODWIN, DIRECTOR OF THE SCHOOL OF MINING.

Dr. Goodwin has been Director for 17 years, ever since the School was founded. At the time of the Commission's visit in 1910, it had completed its 17th session. At the end of the second year it had about 20 students; in 1910 it had 321 engineering students. It also takes care of about 300 students who come in from

the University and study chemistry, mineralogy, physiology and physics. Those are the students entered in Arts and Medicine at the University. The School started off as a School of Mining and Metallurgy, and in course of time has become a School of Practical Science giving a four years' course of University standard, in all branches of engineering and practical science. Graduates receive the degree of B.Sc. of Queen's University. The School of Mining has no degree-granting powers.

During the 12 years two stone buildings and two wooden buildings have been put up, a third stone building is being erected, and tenders have been called for another stone building.

The School of Mining is maintained by a grant from the Ontario Government of $42,000 a year, the fees from the students, which amount to about $30,000 a year, and smaller sums from various sources including an endowment of about $40,000. The School of Mining has been recognized by the mine owners and prospectors; and the Ontario Government recognizes it as a powerful factor in the development of mining in Ontario. It has been mentioned in those terms in the Legislature very often by the Minister of Mines. The mining men throughout the country take the students and graduates freely, and they also depend upon it to a large extent for the testing of large blocks of ore in various ways. The first mining laboratory in Canada was built here in 1904-05. That has been used continuously ever since for that kind of investigation, and also for more extended researches which have been carried out for the Bureau of Mines of Ontario, for the Dominion Department of Mines, and for prospectors.

From the beginning the central idea of the work has always been the study of the present needs and the probable future needs of Canada; and in addition to giving the students the regular 4 years' course, more or less outside work has always been carried on directed to those classes of men in the country who are not prepared to enter upon a stated scientific course—men who could not matriculate but who were prepared to receive instruction of a lower grade. To that end, very early in the history of the school, "prospectors' classes" were organized in Kingston, to which men were invited from all over the country. These were carried on with considerable success. Men who took these classes afterwards became skilled mining men and went out and did good work.

Classes were also started in prospecting and the study of minerals and rocks, the first principles of mining, in various mining centres throughout Ontario. These were afterwards taken up by the Ontario Bureau of Mines and were carried on until about 3 years ago, when they were dropped in favor of a large and more permanent scheme which is just now being carried out by the Ontario Government.

During the summer vacation, students are taken on by various manufacturing concerns, under an arrangement with the School. The School also has a pretty extensive system of co-operation with the mine owners and their friends, so that students in mining engineering are taken on during the summer time, and thus given an opportunity of combining theory and practice. From the standpoint of the School it is found that this is the very best principle, with the grade of teaching which is done.

There is more or less post-graduate work in science always going on at the School. That is supported by the School of Mining. If the School had a larger staff, so that there would be a little more leisure, that part of the work could be extended. Some men are so constituted that they must do research work.

Not much help for evening school work could be promised from the staff as it is constituted at present. It works under very high pressure.

It is quite possible that there might be here and there a member of the staff who could find a little time to help in night class work, and if possible it certainly would be done.

The School of Mining would be very glad to co-operate on behalf of those who are going into factories and shops, because the question is being constantly pressed on it by men who are not capable of taking a University course, but who would be capable of taking a lower grade of instruction. Such men are constantly turned away because there are no means of taking care of them. Perhaps three or four are admitted every session, and the School does the best it can.

SECTION 3: INFORMATION OBTAINED FROM PROFESSOR NATHAN F. DUPUIS, PROFESSOR OF MATHEMATICS AND DEAN OF FACULTY.

Professor Dupuis thought the education of mechanical engineers might be utilized beyond the direct necessities of their profession in connection with technical education. The graduates would be competent teachers of the very subjects that men working in shops and factories would require. The graduates are trained in a way that makes them thorough enough so that they could teach evening schools profitably. A man could not be trained for 4 years without imbibing a knowledge of the methods of teaching from the way he was taught himself. Of course that depends on what kind of a teacher the man is under. No one goes out from this school after 4 years without some information as to how teaching should be done.

The professors in engineering are not restricted from taking outside work if it does not interfere with their inside work. The University work calls for nearly the limit of a man's strength. If a man wants to keep abreast on any subject he has not only to read and write a great deal, but also do other work outside of his teaching.

SECTION 4: INFORMATION OBTAINED FROM PROFESSOR WILLIAM NICOL, PROFESSOR OF MINERALOGY.

Under the direction of the Bureau of Mines, Professor Nicol spent some time, in conjunction with Dr. Goodwin, in the mining camps of Western Ontario.

Nothing is being done now to educate the foremen at the mines. Formerly there was class for mine foremen and prospectors, particularly the latter. That

class was carried on for a number of sessions, but it was found that the work in connection with it interfered seriously with the regular college work, and it was abandoned because those men coming here differed so much in their qualifications, each one requiring special treatment, and naturally it took too much of the professors' time.

Those who have passed the examination in the classes would be quite competent to give instruction in mineralogy in case a school were started in a mining center for those men. That is a subject that would be entirely suitable for ordinary workers,—a connecting link between physics and chemistry and geology. It certainly goes without saying that the superintendent and foreman should be trained men. Most assuredly a training in a University would give a superintendent balance and judgment that would be valuable. "I would that everyone of them should be a graduate of our mining school. A policy that would bring that about would be very advantageous to the Province as a whole. The training of mining prospectors must necessarily tend in the direction of the development of other mineral industries than those now valued. Our service is not adequate by limitation in numbers of persons we can take care of and help here. We are overcrowded now and under-manned in the way of staff, and we have not enough room."

The museum of products in certain stages of preparation is exceedingly helpful to students when we get them to examine them. It appeals very strongly to the public and to strangers coming in to inspect the Institution. For everyone of those cases of specimens there is an illustrated lecture, and for that illustrated lecture a man who is thoroughly conversant with the subject.

Prof. Millar, of the Bureau of Mines in Toronto, has admirably shown that it is practicable to have a Nature Study course in the elementary Public Schools in a mining region with those minerals as the subject of the course. He has written a little book which is used in the Department as a text-book, that is quite within the understanding of men who have received an elementary Public School education. There are also elementary books on mineralogy which have been written with that end in view, and that are calculated also to train the intelligence at the same time. The study of mineralogy can be utilized to train the intelligence just as well as any other science. Of course it involves a certain knowledge of the other sciences, for without an elementary knowledge of chemistry and physics' it cannot be carried to any length; but even without chemistry and physics a knowledge of the minerals as they occur in nature can be made very instructive and entertaining even for children of the Third or Fourth Book in the Public School.

SECTION 5: INFORMATION OBTAINED FROM Mr. LESTER W. GILL, PROFESSOR OF ELECTRICAL ENGINEERING.

As a skilled trade or profession, electrical engineering is about 15 or 20 years old. There must be a little army of men employed in electrical installations of all kinds, for power and lighting. Our object and aim is to train men to take up work of designing and constructing, and operating and managing afterwards. We are training men who are responsible for the planning of electrical installations

and the carrying out of construction, and managing afterwards. Such men have control of the installation of electric light in houses. Architects often associate those men with them in the making of plans; they are doing that more and more. An architect who has not been electrically trained is not a safe man to control electrical installations. In some cities there is a careful inspection of electrical installations in houses, in others there is not. Quite a number of fires arise from unsafe installation. That is quite a menace to the safety of the town. There should be competent supervision.

A man trained here would be assuredly competent to instruct others in evening classes. There might be room for this sort of thing either in the High School or in the evening school. "I have had quite a number of applications since coming here to Kingston from young men asking me to start a night school, but I have had so much other work to do that it is simply impossible. I think there would be no difficulty if we started a night class in getting probably 40 or 50 students. A course for one winter ought to help such men a lot. The equipment for that purpose solely would be fairly expensive if you were to get anything that is worth while."

SECTION 6: INFORMATION OBTAINED FROM Dr. ARCHIBALD P. KNIGHT, PROFESSOR OF ANIMAL BIOLOGY AND PHYSIOLOGY.

Undoubtedly industrial efficiency in the ultimate rests on good health. There is a tremendous need for an educational campaign on the subject of health. The biggest need is to let the people know today what the laws of health are. It has not been done in the past at all. Whether the little book that has just been authorized by the Ontario Government will achieve everything that could be desired remains to be seen in the next dozen or 20 years, because it will only affect the rising generation. Today there is a tremendous need of convincing the general public. In the last report of the Registrar-General for Ontario the number of births for the year was 53,000, and during the year over 8,000 died under one year of age. That represents a death rate of 9 times the average death rate for the Province. I think it might safely be said that half of them died because of poor heritage or congenital debility—which means the same thing—and it still leaves 4,000 infants, at a moderate estimate, whose lives might be saved. I think the lives of 2,000 infants might be saved every year if immediately we started to do in Canada what they have just started to do in Great Britain—as the department of agriculture has done for farming and for dairying interests—send out what are in England called "caravans" on an educational campaign to teach mothers how to care for the young and save the lives of those infants.

The term "medical inspection," is not appropriate as applied to public schools; medical inspection of school children is vastly important. Medical inspection is the inspection that any medical officer has a right to make in the schools to see what children are infected with contagious diseases, and turn them out of school.

Medical examination of school children is the system of examining every school child once a year, say in September, and registering any defect and notifying the parents. In some parts of the world, as in London, England, the inevitable result of medical inspection is that they insist that there shall be medical treatment by the parent employing the family doctor, and if the parent is not able to do that the Municipality of London feeds them, if necessary provides them with glasses for defective sight, and does what it can to correct physical defects so that the child can grow into a strong man or woman. One is an inevitable corollary of the other. What is the good of tabulating defects if nothing is done to remedy them? I think medical inspection ought to be done by medical men, as it is done in London, England.

There should be some systematic way about it, and teachers could not be supposed to make a medical examination of the eye, the ear, the throat, the chest, the lung, the nose and physical make-up due to lack of nutrition, to teeth, etc., because they wouldn't have the medical skill.

A course of hygiene established in our Public Schools would be a means eventually of largely remedying those defects. In 20 years it would have a tremendous effect.

SESSIONAL PAPER No. 191d

CHAPTER LII: THE ROYAL MILITARY COLLEGE OF CANADA.

The College is maintained by the Dominion Government. It teaches military, civic, electrical and mechanical engineering. It is in affiliation with Toronto and McGill Universities. The College generally takes engineering students into their third year, and sometimes into their fourth year. It offers certain advantages to students going into land surveying or into law.

The entrance requirements are that the cadet must be a Canadian, a British subject, and must have resided in Canada for two years; then, provided he passes the necessary medical examination, he competes in the entrance examination, and if successful he enters the college, if there is a vacancy. The entrance examination is very much the same as the University requires; the subjects are Latin, mathematics, French, English, chemistry, English literature and composition. The work in mathematics is just about the same as required for University matriculation.

Bridge Building and Surveying.

Those who are to become engineers or to join the artillery corps get a good deal of mathematics; they get it steadily twice a day for the first two years, a good deal of the time being devoted to it, and a value set on it in the marks allowed for that subject.

Cadets learn to build bridges and handle materials. The work is practical as far as it can be made so. During the open weather in spring and fall, as much outside work is done as possible. Students go out into surveying work a great deal, and take up military topography and field sketching.

Long Hours—Strenuous Duties.

The Commandant, Lieut.-Colonel Crowe, stated:—

The daily duty begins at an hour varying with the time of year. Reveille is at 6 a.m. In fact the cadets are on duty for some form of instruction or practice or training from 6 o'clock in the morning. Their work actually finishes about 7 o'clock at night, sometimes in the year it is 8 o'clock. They have both opportunity and need for making progress in some direction or other. If anyone has a notion that this College is a place for idleness I should like them to come and try it. We lay ourselves out particularly to instil discipline, and we teach the boys first of all to obey. We hope when they leave us they will also learn to command; to some extent we teach them how to command.

The Commandant furnished the following statement:—

The Course comprises (1) military subjects, (2) subjects which are required for both the military and civil professions, and (3) purely civil subjects. The time devoted to them is approximately 2 : 4 : 3.

Attention to Physical Training.

During the last year at the College the work comes chiefly under the latter heading, e.g.:—civil engineering, physics, chemistry and surveying.

Particular attention is paid not only to drills of a military nature but also to physical development. During the first year of the cadet's course particularly great attention is paid to physical training, which is carried out in such a manner that he is gradually brought to a state of physical fitness not only of the muscles but of the internal organs—the heart, lungs, nerves and brain which go with them. This training is carried on throughout the College course. The object is the harmonious development of the man.

Discipline is all-important. Ready obedience, smartness and quickness are essential. Having learned to obey, he is taught later in his course to command. It is considered that whatever profession or calling graduates will ultimately follow, the regular habits and discipline which have been instilled in them are invaluable. For such as follow the military profession these go without saying.

All graduates who do not take up soldiering as a profession, take their place in the active militia. Such as follow civil professions carry with them throughout the Dominion, the discipline and power to command men which they have imbibed.

The physical fitness which they have acquired at the Royal Military College is a grand asset, and enables them to withstand whatever strain they may be called upon to undergo, whether physical or mental, in a way which those who have not had the advantages of a similar development cannot possibly do.

An all-important point is not only the regularity of this training, but the compulsion. That compulsion means disciplining.

What Becomes of Graduates.

The following statement shows the callings selected by graduates:—

No. of Graduates, 510.

198 Imperial Service.

61 Canadian Permanent Force.

Graduates and Ex-Cadets in civil employment in and out of Canada.—

Engineering, Civil, Electrical, Mechanical, etc. 134; Legal, 10; Medical, 2; Chartered Accountants, 2; The Church, 2; Farming and Fruit Growing 9; Government Employment, Dominion and Provincial, 21; Architects, 3; Land Surveyors, 7; Business, Miscellaneous, etc, 89; Gentlemen without occupation, 34; Total 313.

CHAPTER LIII: THE ONTARIO COLLEGE OF ART AT TORONTO.

It is often said (perhaps more by way of explanation than reproach) that as a people Canadians are lacking in taste and refinement because they are too busy building up the country to be able to give much time to such matters as beauty in design and workmanship. This, however, can scarcely be true, for we can safely say that no people of the world have a greater desire for beauty both in Art and Nature, or give more time and energy to satisfy that desire. The explanation of our crudeness and lack of taste appear to be the meagre opportunities hitherto offered for the cultivation of taste and the acquisition of artistic knowledge.

An important forward step has been taken by the Ontario Government in granting $3,000 yearly, and also allowing the use of part of the Normal School buildings in St. James' Square, Toronto, with free heating and lighting, to the recently reorganized College of Art. The Department of Education also contributes $1,000 for the free tuition of teachers during a spring and summer term.

Past Efforts Bearing Fruit.

The College as now constituted is the result of many repeated attempts to formulate a system of Art Education, work of a fairly systematic character covering the past 36 years having been done by the Ontario School of Art, which was founded in 1876 by the Ontario Society of Artists. Going much further back—to 1856—a notable attempt to found a school of Art and Design for Ontario was formulated by the late Dr. Ryerson, then Chief Superintendent of Education. It is interesting to note that only in 1912 were the premises which were partly intended at that early time for the projected school, and the fine collection of classic casts which were purchased for its use, placed at the disposal of the College by the Department of Education.

Organization.

The College is under the government of a Council of representatives and elected members, and was incorporated in 1912 under a special Act of the Provincial Legislative Assembly.

The administration is under the immediate direction of a principal who, with a staff composed of representative artists of high reputation and wide experience as teachers, carries out a thorough course of instruction.

Objects and Courses.

The plan of this College has been largely framed on that of the Royal College ofArt of London, viz.:—

(*a*) The training of students in the Fine Arts, including Drawing, Painting,

Designing, Modeling and Sculpture, and in all branches of the Applied Arts in the more artistic trades and manufactures; and

(*b*) The training of teachers in the Fine and Applied Arts.

The courses of instruction in the College are in three divisions: the Fine Arts Course, the Applied Arts Course, and the Teachers' Course. These courses are so arranged that they may be taken separately or a student may pass through all three divisions.

The Fine Arts Course affords full facilities for the education and training of professional painters, illustrators, and sculptors.

The Design and Applied Arts Course provides a professional training in all branches of Pictorial and Industrial Design, and in their practical relation to Applied Arts in the various crafts and manufactures.

The Course for Teachers is arranged for the training of teachers in drawing, painting, modeling, and design, and for imparting a general knowledge of the Fine Arts by means of lectures and an arranged course of reading in the literature of Art. The Course consists of work in drawing, modeling, painting, and design, and lectures, demonstrations, and reading course covering the various subjects required for the examination for Public and High School certificates. The Department of Education of Ontario has made provision for teachers to study in the College. A ten weeks' Spring Session and a six weeks' Summer Session of the College are conducted for the benefit of teachers and others unable to attend the general session.

Duration of Courses, Admission, Etc.

The duration of study in the different courses is dependent upon the ability and industry of the student and also upon the amount of work previously done, but it is expected that the full course for associateship shall be as follows:—

Primary Classes, one year.
Drawing from the Antique, one year.
Elementary Modeling, one year.
Elementary Design, one year.
Advanced Modeling, two years.
Drawing and Painting, two years.
Advanced Design, two years.
Full Course for Diploma of Associateship, four years.
Course for Teachers in Public Schools, one year.
Course for Teachers in High Schools, two years.

The College admits beginners to the Primary Classes without formal examination. Tests are made in every case for the purpose of placing the student in the class where the most benefit will be received.

The college year is divided into two terms of 15 weeks each, as follows:—

First Term:—October 1st to January 21st. Second Term:—January 22nd to May 14th.

Fees.

For all classes and general privileges for one year, including Summer Schools	$100.00
For all classes and general privileges for one term	40.00
For one class every day and general privileges one term	30.00
For one evening class and general evening privileges one term	10.00
For all classes and general privileges for outdoor Summer Painting School	30.00
For all classes and general privileges for Summer School for teachers and others	15 00

Scholarships.

An important part of the contemplated expenditure of the College will be free tuition scholarships in Painting, Sculpture, and Design. It is hoped that a considerable portion of this amount will be obtained through contributions from various institutions to which the work of the College is allied. A fund is now being raised for Travel Scholarships, by citizens interested in Art, to enable the College to send several students abroad each year for a period of six months, and thereafter to return for a year of work at the college.

Enrolment and Attendance.

The total enrolment of students for the first term was 118; of these 20 attended all classes, 24 attended half time, 33 attended 5 evenings per week, 18 attended 3 evenings per week, and the remainder have worked at different intervals according to their convenience. The students were of all ages, from 12 years to 30, except in the case of several teachers of more advanced years. The greater number of those working in the evening classes were occupied in some allied pursuit in the day time, or preparing themselves for some new occupation in which drawing is required.

The day students, and in many cases the evening students, are studying for the purpose of becoming illustrators, designers, sculptors, or painters. A number of them were students in the former School of Art or in private studios.

A great desire has been shown by many teachers of the Public and High Schools to place themselves in line with the new regulations, and some have begun to work without waiting for the free courses arranged for teachers by the Department of Education.

CHAPTER LIV:
THE CANADIAN MANUFACTURERS' ASSOCIATION AND TECHNICAL EDUCATION.

The following is a statement received at Toronto:—

Toronto, October, 1910.

To The Members,
Royal Commission on Industrial Training and
Technical Education.

Gentlemen:—

I appear before you in behalf of the Canadian Manufacturers' Association as Chairman of the Technical Education Committee of that body. As you are no doubt aware, the Association has been taking for several years past a keen interest in the development of technical education in Canada. In order to further the technical education movement, the Association as far back as the Montreal Convention in 1904 appointed a special Committee to look after this branch of the work. Your honorable body may be interested to knowing what the special task of that committee was.

The following resolution appearing upon the Association records for the year mentioned sets it forth very concisely.

"WHEREAS, the importance of technical education to the manufacturing industries warrants and requires the establishment of modern, thoroughly equipped technical schools throughout Canada;

"AND WHEREAS, the instituting of a general system with one standard curriculum requires that all schools should be under one central management;

"AND WHEREAS, it is the function of the Federal Government alone to properly organize such a system of schools throughout the Dominion;

"THEREFORE BE IT RESOLVED, That the Association should, through a special committee, investigate the subject of technical education as it is dealt with in other countries, with a view to recommending early action on the part of the Dominion Government in inaugurating a national movement for a standard system of technical education in Canada."

This Committee, after nearly eighteen months of study and research, presented to the Government in March, 1906, a memorial which, for exhaustiveness and convincing logic, left nothing to be desired. To summarize in the fewest possible words the contents of this memorial, it may be stated that,

First—It explained very clearly that technical education, or industrial training as it is more properly called, was more closely related to the trade and commerce of the country than to our educational system, and that, therefore, the British

North America Act need not be a barrier to action on the part of the Federal Government if it felt disposed to aid the cause.

Second—It reviewed the practice of other countries having a federal form of government, such as Germany, Switzerland, and the United States, for the purpose of showing how essentially they regarded industrial training as part and parcel of their national trade policy.

Third—It dwelt upon the practice of the Dominion itself in conducting experimental farms, engineering courses, biological research stations, etc., as showing that despite the B.N.A. Act it was already busying itself with educational matters.

Fourth—It emphasized the demand for industrial education on the part of the working classes themselves by pointing out what enormous sums of money were sent out of the country annually to correspondence schools in the United States.

Fifth—It adduced evidence to show that public opinion from one end of Canada to the other was strongly in favor of some action being taken by the Federal Government towards laying the foundation of a broad and comprehensive system of technical education.

For these and other reasons the Committee urged on behalf of the Association the immediate appointment by the Dominion Government of a commission of enquiry, with instructions, first—to ascertain the actual needs of the Dominion in the way of technical education and industrial training, and then to see how those needs could best be met by adapting to Canadian conditions the facilities provided in other countries.

The apparent indifference of the Federal authorities to the Association's appeal; the repeated efforts made by your Committee to quicken public interest in support of their recommendation; their campaign among the newspapers, the universities, boards of trade and labor organizations; the expressions of hearty approval obtained from Provincial Governments; and finally the debates in the House of Commons itself, are all matters of record that have been dealt with in the reports presented from year to year, and that need not therefore be gone into on this occasion. Suffice it to say that the campaign as a whole was probably prepared with as much thoroughness and conducted with as much perseverance as any campaign ever undertaken by the Association.

Nor can the good faith of the Association or the sincerity of its motives in thus urging the creation of a federal commission of enquiry be called into question by those who are prone to read nothing but selfishness into the actions of our organization, for it will be recalled that at the Montreal Convention in 1908, when all hope of success had been practically abandoned, the Association voted $5,000 of its own funds towards financing this undertaking, which was obviously as much in the public interest as in its own.

That the Commission was not appointed under Association auspices in conformity with the vote is explainable by the fact that immediately following our decision to proceed with the enquiry at our own expense, the attitude of the Government became much more favorable, the assumption being that they felt they could ill afford to allow a work of such magnitude and of such far-reaching im-

portance to the nation as a whole to be undertaken by the very people to whose application they had been turning a deaf ear.

The efforts of your Committee were accordingly once more directed along the lines of their first endeavor, and to such good purpose that in March last the Government, through the Honorable the Minister of Labor, made public announcement of its intention to appoint the Commission so earnestly desired. Provision was made in the supplementary estimates for an appropriation sufficient to enable the Commission to carry on its work until Parliament would reassemble, and on June 1st an Order-in-Council was issued constituting the Commission for the purpose of enquiring "into the needs and present equipment of our Dominion of Canada respecting industrial training and technical education, and into the systems and methods of technical instruction obtaining in other countries."

The manufacturers of Canada are approaching this problem with open minds. In a country whose physical conditions are so varied there must be considerable diversity of interest. It is therefore difficult, if not impossible, to make any recommendation regarding Technical Education which is applicable all over Canada. In this respect Canada differs greatly from Germany, France and England, where the best systems of technical education are to be found to-day. In these countries there are no vast areas similar to our prairie provinces in which practically no manufacturing is carried on. It is possible in these countries to develop uniformity in the Technical Education systems. It is doubtful whether this will ever be possible in Canada. The situation is further complicated in Canada by the constitutional enactments placing the administration of the educational systems entirely in the hands of the provinces. No doubt your honorable body is fully seized with these basic considerations. Taking all these facts into consideration therefore, the Committee before you would suggest that in addition to a general finding on the conditions throughout the whole of Canada, your report should include separate, detailed accounts of the conditions in each province together with your recommendations based on these conditions, so that each province can proceed to carry out your suggestions without reference to the other provinces or to the Federal Government. By treating each province as a unit it is our opinion that the Commission will expedite the development of Technical Education very materially.

It is hardly necessary to remind you that in studying this question, the Manufacturers' Committee has been handicapped by the dearth of authoritative information of any kind on the subject in Canada. Technical Education is still in its infancy in Canada. Not only is there a great lack of information regarding it, but those of our educationists who have made a study of it are not agreed as to how far it should be incorporated in our present school systems. In fact it may be truthfully said that there is considerable difference of opinion as to the fundamental meaning of technical education, industrial training and the other terms used in this connection. It would seem desirable that the Commission should clear the air by authoritatively defining some of these terms for the information of the Canadian people. We would respectfully direct the attention of the Commission to the following considerations:—

1. *Decline of Apprentice System.*

The widespread desire of manufacturers the world over for technical education during the past generation is due almost altogether to the decline—indeed one might say to the breakdown—of the old apprentice system. Without fully tracing the cause, with which your body is already familiar, of the failure of the time-honored method of educating journeymen to meet the requirements of modern industrialism, it may be accepted as a fact. Even in those trades in which it still exists nominally, it is rendered useless by severe limitations placed on it. In the moulding trade for example, the regulations in this city demand that there shall be only one apprentice for every eight journeymen. As the period of apprenticeship is fixed at four years this means that a full generation must elapse before there is a new journeyman to take the place of an old one. Admitting for the sake of argument that death was the only source of removal of a working journeyman in that period, the ratio is still out of all proportion. Actuarial tables show that a journeyman moulder lasts much less than 32 years. But when we take into consideration the fact that many moulders desert their trade for other occupations, develop into foremen or commence business for themselves, the result of the restrictions is apparent. Owing to the exceptional opportunities offered to all classes of Canadian citizens through the rapid development of Canada, particularly in the West during the past ten years, your Committee believe that the number of journeymen who desert their trades is higher in Canada than in any other country. This condition will in all probability prevail for another generation. Every year when the Homeseekers' Excursions are announced large numbers of employees in the factories of Eastern Canada desert their occupations to go West and become farmers or make their living in some other way. This makes the restrictions on the apprentice system even more onerous than they otherwise would be.

2. *Need of Competently Trained Foremen, Superintendents, etc.*

Even were the apprentice system in good working order to-day, it is doubtful whether it would fully meet the demands of the highly specialized industries of this century. The greatest difficulty manufacturers have to face is the securing of competent, well-trained mechanical experts to act as foremen, superintendents, managers, etc. Such men must not only be well up in actual trade practices but must also know the theory of their work. The old apprentice system would meet the first requirement, but it would have to undergo important modifications to fulfil the second condition. It is probable that it could be developed so as to provide theoretical training if it were free from restrictions. This has been amply demonstrated by the splendid systems developed by several firms in the United States, notably, The Brown & Sharpe Machine Co. of Providence, The General Electric Co. of Schenectady, The Baldwin Locomotive Works, Philadelphia, The Hoe Press Co., New York City, and several others. We would request that the Commission devote special attention to these systems when visiting the United States. They show in a very practical manner how theoretical training can be co-related with shop practice.

It is the dearth of competent executive men for the shops that impairs the industrial efficiency of Canadian factories more than anything else. Very few of these men can be recruited from the mechanics of this country because of the lack of technical education facilities. It is true these facilities are supplied on a limited scale by a few Canadian firms; but the movement has not developed far enough to improve conditions to any extent. The result is that many of the factory executives, as well as many of the highest paid artisans, are recruited from the industries of Great Britain and United States, where technical education has been established for many years. The system to be developed in Canada should aim primarily at remedying this evil.

3. *Provide Technical Courses in Secondary Schools.*

Your attention has already been directed to the fact that our educational systems are devoted almost entirely to preparing pupils for commercial or professional careers. Very little effort is made to interest the pupil, who, when a certain stage in his education is reached, fails to respond to the effort of the teacher. This pupil is not to be condemned as an idler at once. Very probably his awakening mind is attracted by mental food other than that offered him in the rigid curriculum of our present system. He may desire to work with his hands and through a different system could easily be interested in studies which would tend to guide those hands in their work. This pupil should not be turned out of the schools in a dissatisfied frame of mind. He should be retained until definite convictions have been reached as to what purpose he shall devote his life.

Under our present educational systems many pupils are driven by the system itself by or their parents into commercial and professional life, who would be much better suited for executive positions in our workshops. Too often parents do not realize the prizes that are available in industrial life and only in recent years have our educational authorities awakened to the fact that the educational system as at present devised tends to take the youth of the country away from industrial life.

The question presents itself:—How can he be retained under the beneficent influence of discipline and study longer? We would suggest that some plan be adopted along the lines recommended recently by the Senior Principal of Toronto High Schools, to whose report we would respectfully suggest the Commission's attention. Preliminary courses in technical education to fit in with the practical work of the manual training schools, perhaps, might be provided in the higher classes of Public Schools and in lower forms of the High Schools. These courses should be arranged as far as possible to reach the pupils who are dissatisfied with the ordinary "book learning" courses and whose wish it is to learn a trade.

4. *Shop Practice.*

In connection with these preliminary courses, advanced courses in technical training should be established in separate buildings. These schools would have the same standing as the present high school and should contain shops where actual trade practices could be taught.

5. *Night Classes.*

Night classes should be given in the advanced schools for the benefit of those who cannot afford to remain in school in the day time beyond the time necessary to take the preliminary courses. These night classes should be continued over the entire year as far as possible.

6. *Provide for Individuality of Pupils if Possible.*

In drawing up the curriculum for the preliminary and advanced courses provision should be made if possible to give greater scope for the individuality of the pupils. This would tend to produce the type of men required to fill executive positions in our industries probably more quickly than any other means that could be adopted. It is recognized of course that too much freedom in this direction might defeat the object in view. It is also recognized that the development of the system along these lines would prove expensive, but it is hoped that something may be done in this direction.

7. *Question of Cost.*

The question of cost naturally looms up in considering the problem of technical education. It must be recognized that the development of techincal education is going to cost a considerable amount; but we feel that it will be money well spent and hope that when the report of your honorable body is published it will educate the citizens of Canada in this direction. In this connection it occurs to us that the larger cities and municipalities should not be expected to provide facilities for technical education for all the territory in their vicinity, as seems to be the case at present, unless provision is made for outside financial aid. It is recognized of course that the biggest schools will be situated in the big cities and that many of the pupils will come from outside the cities. We feel strongly, however, that Federal and Provincial aid should be provided. This method has been followed with great success in the United States, Germany and other countries and should be adopted here. Otherwise the bigger municipalities will shrink from providing the funds for the erection and equipment of proper schools.

8. *Native Canadian Industries.*

There are a few things which cannot be made in Canada to advantage, therefore every industry should be considered. Those now established will naturally have the first claim upon your attention; but you will doubtless take into special consideration the development or establishment of those industries whose raw material is a natural product of Canada.

9. *Alternating Classes—Shop and School.*

In connection with the advanced schools provision should be made, wherever feasible, for the establishment of courses of study in which two divisions of the pupils alternate in shop and school work. In some industries local manufacturers

can be found who will co-operate in arranging these courses, which have proven most beneficial and successful in certain United States cities. The pupils spend say two weeks in certain school and laboratory work and then go to a factory for two weeks. There they see an exemplification of the processes they have just studied. Their place in the class room is taken by another division who follow them again in the factory and so on. This method lends itself admirably to the development of thoroughly trained mechanics and is calculated to hold the interest of the pupils who have special aptitude along mechanical lines.

10. *Local Conditions to be Considered.*

As far as possible the technical education facilities in any section of the country should be developed along special lines to meet local requirements. There should be a certain amount of latitude allowed the educational boards of the different municipalities so as to enable them to suit the courses they offer to the industrial requirements of their vicinity. The desire for uniformity should not be pushed to extremes.

This Committee wishes to take this opportunity of urging every member of the Association to facilitate the enquiry to the best of his ability. It is true that the object for which our organization has worked so long and so faithfully has now been attained; but the appointment of this Commission should mark the real beginning rather than the end of our effort in the cause of industrial education. Through it there would seem to be placed within our reach the desired opportunity to equip our country with the best system of technical and industrial instruction that can possibly be devised, and when we say that the best is none too good for Canada we feel sure we are but echoing the sentiment of everyone here present. It is essential therefore that the needs of our manufacturers as regards industrial efficiency should be clarified and emphasized for the benefit of the Commission to the fullest possible extent.

In submitting the above summary of its views on the important subject into which it is the duty of your honorable body to enquire, the Committee represented before you desire to make it clear that the recommendations herein are not its last word on the subject. As your investigations proceed and new evidence is brought out at different centres in which sittings are held, the Committee may see some of the problems the country has to face in connection with Technical Education in a new light. In that event it may take the liberty of amending or adding to its suggestions.

All of which is respectfully submitted.

GEO. A. HOWELL,
Chairman Technical Education Committee.

FURTHER INFORMATION OBTAINED FROM MR. G. A. HOWELL.

The Canadian Manufacturers' Association represents a large percentage of the manufacturers for the whole of Canada. His committee was appointed several years ago to consider the question of Technical Education in relation to industries. All such matters were referred by the Association to them, and their purpose was to further Technical Education as much as possible in Canada.

The general consensus of opinion among manufacturers, Mr. Howell stated, is that Technical Education is necessary for the maintenance and improvement of their several businesses. It would be more valuable to some manufacturers than others, being more needed in the more highly skilled operations. In one or two firms in Toronto men have organized classes among themselves to study matters connected with the trade. Manufacturers encouraged that sort of thing, not fearing that if workmen become more highly intelligent they would also become manufacturers, and compete. On the contrary, the increase of intelligence would be important and valuable to all employers of labor.

Mr. Howell was not aware that anything had been done on behalf of the manufacturers in the way of appointing Committees to consider and consult with principals of schools concerning young fellows who have special aptitudes for particular businesses or trades. If technical schools were started, extended and well attended, it would certainly seem desirable that very intimate relations should exist between the technical schools and the manufacturers of the place. The Toronto Branch of the Association had always taken a very active interest in the Technical Schools there, visiting it very frequently, giving prizes in the various courses in the school and doing everything that seemed open to them to encourage the school. He thought they would also give preference in the way of employment to graduates, other things being equal.

Speaking for himself and from his knowledge of manufacturers, they always gave preference to Canadians, to local men, providing they had the same knowledge as outsiders, whom they did not want to bring in unless driven to it. He had not found any lack of efficiency on the part of our people when they get a chance to be trained. As Canada grows the demand for manufactured products is also increasing rapidly, and the demand for skilled labor is of course increasing with the demand for products. In his experience and knowledge of manufacturing conditions there is and always has been a scarcity of skilled labor in Canada in a great many industries, though not in all; and recourse is had to outside sources for those skilled men. For instance, in the photo-engraving business, with which he was connected for over fifteen years, they could not get men outside of those they trained themselves, without going to England or the United States. The same conditions apply in many other industries. What he and the manufacturers hoped for as a result of the Commission's investigations and report was the establishment of a Technical Education System which would render that unnecessary. The Technical School in Toronto could be applied to for adequate assistance, if the scope of the School were broadened under such a system. Of course the conditions existing in Toronto would not apply everywhere; but the Technical School in each town, or the extension of the High School in the direction of Technical Education—which Dr. Colquhoun outlined as being quite possible—would

take the direction of being pretty closely allied with the industries prevailing in that centre. That would apply all over Ontario or Canada, and as a result the apprentices employed in various industries could put in part-time in a school and part-time in shops, according to the scheme outlined by Professor Schneider of Cincinnati, and thus a good proportion of skilled labor would always be available. Under present conditions, if a manufacturer wishes to extend his business or establish a branch factory, the first thing that troubles him, after he had made his financial arrangements, is the difficulty of getting capable men as Managers and Superintendents. Those wants could be supplied if it were possible for a man with a commercial training to get, at a techincal school, some practical knowledge of the business which he was to manage, and at the same time for a workman to get, at a technical school, the theory and science of the business of which he already knew the practical end. In addition to those there is always the need of vocational training for ordinary skilled workers.

Having some knowledge of the present Technical School in Toronto, Mr. Howell's opinion was that its equipment is quite inadequate to meet the industrial requirements of that city. As at present established that school is very thorough in some directions. As regards the courses in Art, Modeling, Chemistry and things of that sort, they are no doubt quite efficient; but further than that they have not the facilities for instruction in many directions that the manufacturers would like to see them have. The new curriculum adopted will be a decided improvement on the present one, and if they carry it out it will be of great advantage.

CHAPTER LV: THE TORONTO BOARD OF TRADE.

Mr. Robert S. Gourlay, representing the Toronto Board of Trade, presented a memorandum giving extracts from their minutes showing what the Board had done since 1899 in connection with Technical Education.

He stated that following the Conferences of the leading Canadian Boards of Trade, held in Toronto on June 6, 1899, the Toronto Board of Trade appointed from its membership a Technical Education Committee who since that date have been untiring in their zeal and efforts to further this movement. Through the members of this Committee the Board has studied the subject somewhat exhaustively at home and abroad; and through interviews with Premiers of the Dominion and the Provinces, as well as with members of both Dominion and Provincial Cabinets, also by public meetings, by printed reports and addresses from technical experts, by co-operation with Toronto University authorities and the Toronto Board of Education, as well as by representation on the Toronto Technical School Board, had done much to develop the present interest in this great movement, and had been decided factors in the progress so far made.

In August 1899 the Committee had submitted a report in regard to Technical Education, including an exhaustive curriculum from both an industrial and commercial standpoint that is still so far in advance of the development of the movement, and had been so favorably received and approved by technical experts in Great Britain and the United States, that it was now submitted with but little change for the consideration of the Commission. That report was submitted to the Board on December 7, 1899, accompanied by a few words of introduction from the Chairman of the Toronto Board's Technical Education Committee, Mr. J. D. Allan, who had not only been an enthusiast in this matter, but whose services had been of great value to the movement in Toronto.

SYNOPSIS OF RECORD OF ACTION BY THE BOARD.

The following is a synopsis of the action taken by the Board of Trade of the City of Toronto in the matter of Technical Education as taken from the minutes of the Council from March 24, 1899 to Sept. 22, 1910.

(The material, from which this outline is condensed, was prepared by the Technical Education Committee of the Board, and filed by Mr. R. S. Gourlay at the meeting of the Commission in Toronto.)

On March 24, 1899, a letter was read from the Ottawa Board of Trade, dated March 7th, *re* National Technical Education. On motion, the following were appointed a Committee to deal with the matter and report to the Council:—W. F. Cockshutt, (Chairman), W. Stone, W. Christie, J. D. Allan, J. F. Ellis.

On April 24, 1899 the report of Committee on National Technical Education was received and adopted, and the Secretary was instructed to arrange a date for meeting with the Hon. G. W. Ross.

May 23, 1899, a letter was read from Hon. G. W. Ross expressing his willingness to attend on June 6th and deliver an address on Technical Education. A general meeting was ordered to be called for that date.

Messrs. W. F. Cockshutt, E. B. Osler, M.P., J. Ross Robertson, M.P., and G. H. Bertram, M.P., were appointed delegates from the Board to attend a convention *re* Technical Education to be held in Ottawa during the present session of Parliament.

Conference Appoints Delegates and Committee.

June 6, 1899.—A Conference, attended by delegates representing leading Canadian Boards of Trades from all over the Provinces, was held in Toronto to discuss the question of National Technical Education and its bearing on Trade and Commerce. Hon. G. W. Ross was the principal speaker.

Mr. P. H. Burton moved the following Resolution:—

That this meeting most heartily endorses the movement in favor of a broader and more thorough technical training in all its branches in this country, and pledges itself to forward the movement by all means in its power, and that the chairman do appoint a small committee as a nucleus.

The meeting adopted the Resolution, and the President appointed the following committee:—P. H. Burton, Ald. Lamb, J. D. Allan, A. M. Wickham, T. A. Hastings, Toronto; T. H. Preston, and W. F. Cockshutt, Brantford; O. G. Anderson, Woodstock; Crawford Ross, Ottawa; John Hoodless, Hamilton.

Dec. 7, 1899.—Report of Technical Committee as submitted on August 10th was adopted as follows:—

Report of Special Committee *re* Technical Education.

To the President and Members of the Council:

Gentlemen:—Civilized communities throughout the world are massing themselves together, each mass being measured by its force, and if we are to hold our position amongst men of our race or amongst the nations of the world we must make up the smallness of our numbers by increasing the intellectual force of the individual.

Unless we intend the Canadian people to become hewers of wood and drawers of water for the world we must make them as well prepared for the work they have to do as are foreign workmen.

An excellent system of education is one of the best forms of national investment.

In commercial and industrial efficiency, in a higher level of civic duty, and a wider diffusion of moral culture and religious feeling, the nation is amply repaid for its expenditure.

ONTARIO'S LACK OF TECHNICAL EDUCATION.

The question of Technical Education has at last assumed a position of great prominence, and is commanding special attention in every country, and conferences are being held to consider means and methods of making this a leading feature. In Ontario all are probably agreed that our system of elementary education is admirable, but higher education has been worked out too much on a theoretical plan, and has graduated many whose power of applying the results of their academic course has resulted in leaving too many helplessly equipped for the battle of life. To remedy this we seek to utilize our present system as far as possible by correcting its weakness, lopping off the useless branches, and grafting new shoots productive of vital results, in the ever-changing condition of manufacturing and commercial development.

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Trade has two specific sides—production and distribution. The former concerns every manufacturer, agriculturist, miner, and miller; the latter is the province of the merchant. The one without the other is helpless, and a system of education that includes the one and omits the other is defective, and yet the immense sums spent on education in Ontario has very slightly minimized this defect, because of the apathy of people in taking advantage of existing legislation empowering them to introduce in some degree technical training.

STUDY GERMAN METHODS.

Does our present system emphasize the importance of training a youth for commerce? We take this first because of the prevailing impression that we require no progress in this line. In reality right commercial training is a branch of Technical Education, if we believe that the distribution of commodities is as important as their production, and requires a special course of training just as much as the other. If we are to meet effectually the commercial competition of other countries we must have trained merchants as well as skilled mechanics. No country has shown a more striking instance of this than Germany, the aggressiveness of whose merchants in the distribution of the products of the skilled industrial army (created in 25 years by their combined system of technical education and commercial education), meets with equal success in free trade Britain and in high tariff America; and their ability to wrest from her competitors some of their principal markets is distinctly traceable to the advantage of a specialized training of her population. If this be acknowledged, would it not be well to study her methods and adopt any features that can be grafted upon our own system that will make us more effective in production and distribution? The Commercial High Schools that train men for mercantile careers, teach history, geography, chemistry, modern languages, mathematics, book-keeping, commercial law, political economy. The Consular Report says: "The School neither aims nor hopes to replace actual experience, but it does aim and it does hope to build the boy up and out in such a manner as to enable him to use his eyes, ears and faculties in acquiring knowledge rapidly, to exercise good judgment and tact, to give satisfaction, and to go climbing upwards."

There are Technical Schools of various grades for almost every industry—weaving, knitting, soap-making, building, clock-making, brewing, tanning, dyeing, farming, plumbing, navigation, marine engineering.

The United States Consul reports: "If an industry languishes in Germany, immediately a commission enquires into the cause, and recommends remedial measures, among which is usually the advice to establish Technical or Industrial Schools devoted to the branch of business under consideration."

SYSTEM SUGGESTED FOR ONTARIO.

In discussing what system we shall adopt in Ontario we will assume a good elementary education as a basis; having obtained this, 14 years to be the age of applicants, candidates to elect whether the commercial or industrial course.

(1) That Technical Education in order to be thoroughly successful should be part of the foundation of our general educational system, and elementary technology should be as speedily introduced into all forms of the Public Schools in the Province as time and circumstances will permit. The technical subjects taught must vary according to the special locality, with due regard to the manufacturing industries to be benefited.

(2) Both day and night classes should be held in these schools.

(3) It is necessary that pupils should have a good elementary education, and therefore a fixed standard of education is essential before these pupils be admitted to the school.

(4) The subjects taught in the Technical Department should include the following, and the teaching should be as practical as possible, have due regard to the particular trades common to the municipality in which the school is located:—Strength of Materials, Building Construction, including Heating, Ventilation, Plumbing, Drainage. Physics (which should include Heat, Light, Sound, Chemistry, Electricity and Magnetism), Machine Construction and Design, Mechanics, (practical and applied), Steam and the Steam Engine.

Chemistry.—Textile Fabrics, Dyeing and the Art of Coloring, Tanning and Dressing of Skins, Mixing of Cement and Mortars. Mineralogy and Metallurgy, Assaying, etc. Geology, Mathematics, including Euclid, Trigonometry, Algebra.

Regular Art Course.—Antique, Freehand and Perspective, Sketching, Color, Anatomy, Life Portrait, Composition, History of Art, China Painting.

Design.—Freehand Drawing, Ornaments, Color, History of Art, Composition, Decorative and Applied Design, Technical Methods.

Clay Modelling and Wood Carving.—Ornament, Antique, Design in the Round, Modelling from Life, History of Art, Freehand and Instrumental Drawing.

Architecture.—Freehand and Instrumental Drawing, Color, History of Architecture, Theory and Practice of Architecture.

(5) DOMESTIC SCIENCE should embrace the following subjects:—

Cookery, Dressmaking, Plain Sewing, Fancy Needlework, Physical Culture.

STRONG COMMERCIAL COURSE OUTLINED.

(6) A COMMERCIAL COURSE should embrace the following subjects:—

Commerce and Book-keeping.—Under this heading should be included Purchases and Sales, Documents relating to same, Modes of Effecting Payment, Means of Transport, Customs and Excise, Bonded Warehouses, Banking, Exchange, Insurance, Syndicates, General Idea of Trade and Industry, Mental Arithmetic, Interest, Discount and Commissions, Current Accounts, Various Systems of Weights, Measures and Coinage, Division and Classification of Accounts, Operations at Exchanges, Selling out, Quotations, Drafts, Balancing of Accounts, Inventories and Balance Sheets, Organization of Accounts, Commercial Accounts, Industrial Accounts.

Modern Languages.—English, French, German and Spanish.

Commercial Arithmetic.—Calculations relating to Simple Interest, Disconnt, Precious Metals and Monetary Systems, Stocks, Exchange Operations, Exchange, Compound Interest, Industrial Stock, Issuing of Stock by large Banking Establishments, Operations of Insurance Companies.

Study of Merchandise.—Including Precious Stones, Combustibles, Chemical Products, Vegetable and Animal Products used in Industries, Building Materials, Metals, Vegetable Products of Medicinal Value, Mineral Products, Animal Products and Vegetable Products.

Commercial Geography.—Considering each country in the light of its Geographical Configuration, Population, Languages, Political Institutions, Climate, Agricultural Products, Mineral Wealth, Manufactures, Industrial Centres, Means of Communication, Foreign Trade, Imports and Exports, Customs Administration, Commercial Treaties, National Customs and Character.

Means of Transport.—Establishment, Maintenance and Administration of Means of Communication, Special Study of Railway Tariffs.

Commercial Law.—Including General Summary, Documents, Merchants, Companies, Intermediaries employed by Merchants, Sales, Transport Contracts, Notes and Bills of Exchange, Banking Transactions, Bankruptcy.

Maritime Law.—Vessels, Freight and Charter Parties, Marine Insurance.

Industrial Law.—Patents, Models and Designs, Trade Marks, Unfair Competition, Dangerous Industries.

History of Commerce.—Tracing the origin and development of Trade through the world from the earliest times.

Political Economy.—Production, Interchange of Commodities, Division of Property, Consumption, Population, Civic Government.

Fiscal and Customs Legislation.—Commercial Statistics, Commercial Policy and Customs, Tariffs of Principal Countries.

Commercial Apparatus.—Elementary Notions of Mechanics, Telegraphy, Telephony, Electric Light, Electricity as a Motive Power, Railways, Internal Water Ways, Seaports, Warehouses' Correspondency, Composition, Penmanship, Stenography and Typewriting.

All of which is respectfully submitted.

(Sgd.) JAS. D. ALLAN, *Chairman.*

Adopted Aug. 10th, 1899.

January 8, 1900.—Names of Messrs. J. D. Allan and F. B. Polson were sent forward to Mayor as representatives on Technical Board.

January 18, 1901.—Mr. J. D. Allan was appointed representative on Toronto Technical School Board.

DEPUTATION TO DOMINION GOVERNMENT.

March 4, 1901.—Messrs. A. E. Kemp and J. D. Allan were appointed representatives on Joint Deputation from Board of Trade to proceed to Ottawa to secure such action by the Dominion Government as may be practicable to aid the general movement for Technical Education.

March 9, 1901.—Mr. J. D. Allan made the following report:—

GENTLEMEN,—Acting upon your instructions given at the meeting of your Board on the 4th inst., I went to Ottawa as your representative upon the Joint Deputation from the Boards of Trade of Canada to meet the Government *re* "National Technical Education."

The Joint Deputation was large and representative of every city from Halifax to Victoria, and succeeded in impressing the Government with the necessity for taking some action in the matter. Sir Wilfrid Laurier suggested a difficulty because of the fact that the Dominion Government had no power to deal with educational matters. To this objection I made the reply "that this was a matter of Trade and Commerce, and in no sense conflicting with ordinary

education." He then assured me that if some scheme for the working of such a system was put before them upon which he could introduce legislation, he would gladly take the matter up.

The action of the Committee of the Ottawa Board of Trade, or rather some members of it, seemed to me to indicate a greater desire to get appointed upon a Commission than I considered necessary for the advancement of the cause of Technical Education, and from the knowledge of the subject displayed in its discussion they did not seem to have given it sufficient thought to fully understand the scope of it.

As stated before the Council on Monday, I expressed myself opposed to a Commission, and was supported in this by the President and some members of the Ottawa Board of Trade.

I understand the matter is to be brought up in the Dominion Parliament in a few days in order to test the feeling of members upon it, after which, some further action will likely be necessary.

May 15, 1901.—Report of Technical Education Committee was received and adopted by the Council of the Board as follows:—

Correspondence With Educational Authorities.

The correspondence with the Minister of Education and University authorities, referred to in the foregoing Report of Committee, included a letter from Mr. Edgar A. Wills, Secretary of the Toronto Board of Trade, dated May 1st, 1901, to Hon. Richard Harcourt, Minister of Education, as follows:—

Some two years since at the suggestion of the then Minister of Education, the Hon. Geo. W. Ross, a public meeting of this Board was held for the purpose of considering the importance of Technical and Commercial Education. The result of this meeting was the appointment of a Committee to consider the necessities and arrange a curriculum suitable for the present requirements in industrial and commercial life. The curriculum then arranged has been received with the greatest favor in leading Educational Institutions in the United States, and a feeling in favor of the adoption of a Commercial Department in our University has become very marked.

At a meeting of our Council held yesterday afternoon, I was instructed to call your attention to the necessity of making some preparation for a Commercial Department in our University, and the Council would be glad to confer with you in regard to the establishment of such a Department.

Gentlemen:—The Committee submit correspondence that has been held with the Minister of Education and University authorities, and beg to report that by appointment an interview was held with the Minister today, at which there were present Messrs. Ames, Cockshutt, Allan and the Secretary, when an informal discussion of the position of Technical Education in this city and Province was held.

The Minister was fully in accord with our views, and seems disposed to press forward with increased energy in the adoption of a Commercial Course in the University, and in increased facilities for instruction in practical education in the various schools of the Province. He dwelt upon the necessity of Commercial High Schools, after the plan of the Chicago English High and Manual Training School, and recommended that a member of our Committee be delegated to visit said school, and promised aid to the extent of $2,000 per annum if a similar one be established here.

He further stated that correspondence was at present being held between Ministers of Education in the various Provinces with the view of securing joint action in approaching the Dominion Government for financial aid to further the universal introduction of Technical and Industrial Training in all the Provinces, and requests the assistance of Boards of Trade in this direction when pressing the matter upon the Dominion Government. He also recommends, and has agreed to arrange, a meeting with the Senate of the University to discuss the creation of a Commercial Curriculum, proposed to be added to the University course.

Your Committee were gratified to find the Minister largely in accord with the views of the Board, as published in their special report of September, 1899.

Conference With University Senate.

May 28, 1901.—Dealing with this matter, the Technical Education Committee, through Mr. W. F. Cockshutt, Chairman, presented the following report, which was adopted:—

Gentlemen:—In accordance with appointment your Committee, consisting of Messrs. Allan, Ellis and Cockshutt waited upon the Senate of Toronto University on the evening of the 23rd May, to discuss the proposed Commercial Courses.

The discussion resulted in the drafting of a curriculum for a Diploma in Commerce—a copy of which is herewith submitted. The debate brought out the fact that the members of the Senate are largely favorable to the proposals contained in our Report of December, 1899.

Full details are not given under the various heads, but will be largely comprehended in the actual instruction as outlined in our report for a full Commercial Course.

It will be observed that a two year term only is proposed for the present, but this is experimental only, and may be further enlarged to a three or four year course later on as the matter more fully developes and in accordance with experience. Lack of funds prevents much new work, but your Committee replied to this by urging that Boards of Trade will press upon the Government the necessity of adequate financial assistance to the University in carrying out this very important change.

Your Committee were much encouraged by the attitude of the members of the Senate towards this movement in favor of higher commercial education, some members going so far as to state that the only reason for not moving earlier was that such commercial bodies as our Board of Trade had never approached them, or even sent them a copy of our exhaustive report on this subject compiled over two years ago.

Your Committee would now recommend the adoption of the proposed curriculum as being both practical and possible, and believe it to be a decided step in advance along a very desirable line.

Mr. James D. Allan was appointed a delegate to visit and report upon the Chicago English High and Manual Training School, and on the suggestion of Mr. Massey he was requested also to visit the Case School of Applied Science at Cleveland, Ohio, and report thereon.

An offer was made to the Senate of the University of Toronto to create a scholarship or scholarships to be known as "The Toronto Board of Trade Scholarship" for an amount not exceeding $200.

July 31, 1901.—Mr. J. D. Allan presented his report *re* visit to Chicago English High School and Manual Training School, and the Case School of Applied Science, Cleveland, Ohio.

December 20, 1901.—Messrs. Ellis and Allan were appointed to represent Council at a meeting with the Premier at Parliament Buildings, December 20th.

January 13, 1902.—Mr. J. D. Allan was re-appointed representative on Toronto Technical School Board.

May 9, 1902.—Resolution was passed protesting against City Board of Control cutting down the estimates of the Technical School Board.

November 25th, 1902.—The Report of the Technical Education *re* Board of Trade Scholarship was (in the absence of Mr. Cockshutt, Chairman), presented by Mr. J. D. Allan, who stated that in the opinion of the Committee the money should be used only for the purposes designated by the Council, viz., to grant a scholarship for the University of Toronto Commercial Course, and not for the purchase of books, etc., as suggested by the University authorities. Mr. Allan suggested that a small grant should be made to the Toronto Technical School in the interests of the Commercial Course. Report as presented was adopted.

Commercial Course Not Prosperous.

The report on Technical Education contained in the Board of Trade Year Book for 1902, contained reference to the Scholarship given by the Board the previous year for the purpose of encouraging the Commercial Course that had then just been inaugurated by the Senate of the Toronto University. With regret the fact was noted that up to the present this new departure made by the University had not achieved the success that was confidently hoped for, when the curriculum

for a diploma in Commerce was established. This lack of success was principally due to two causes, (1) lack of support on the part of our commercial and manufacturing interests, and (2) considerable apathy on the part of the University authorities themselves in the manner in which the new Course was inaugurated, and lack of enthusiasm in laying it before the class of our citizens that would be likely to be benefited by it and interested in it.

Successful Work at Technical School.

In December a Board of Trade evening was held at the Toronto Technical School, and a goodly number of the members of the Board attended and displayed much interest in the work in the various departments.

A large number of scholars were found entered in almost every department of the School's instruction, and the reports received from the Principal, his assistants, and the members of the Technical School Board, convinced the Committee that substantial progress was being made, and that the young men and women of Toronto are appreciating the excellent opportunities afforded them of improving their positions in life.

The Commercial Course in this School has a large number of students enrolled, and serves to show that opportunities for advanced Commercial Education are required and appreciated by a goodly number of Toronto's young and rising citizens.

The Technical Education Committee urge upon the members of this Council and Board the desirability of making a long and strong effort to get various Educational Institutions into line with the present day requirements with the growing and developing trade of this broad Dominion.

December 13, 1904.—Mr. J. D. Allan was appointed representative of Board to attend Commencement Exercises of Technical School Dec. 14, 1904.

November 8, 1906.—The following communication was received from Canadian Manufacturers'Association dated Oct. 8, 1906, *re* Technical Education:—

CANADIAN MANUFACTURERS' ASSOCIATION LETTER.

As members of your honorable body are no doubt aware, one of the most serious barriers to the development of Canadian industry to-day is the scarcity of skilled help. Manufacturers are experiencing more and more difficulty in securing competent workmen to man their factories. Workmen, too, are complaining of the lack of educational facilities whereby they may qualify themselves for positions of greater responsibility. The situation indeed has become so acute as to call for a searching investigation into our educational systems to see if provision cannot be made therein towards supplying the growing needs of our great national industries.

With this end in view the Canadian Manufacturers' Association memorialized the Dominion Government in May last asking for the appointment of a Commission to report on the best means of establishing a national system of technical education. By a National system we do not necessarily mean one under Federal control, but one planned to care for the needs of the country at large, one which will permit of co-operation among the municipalities, the Provinces and the Dominion. Our petition to the Government was endorsed by every branch of this Association and by the principal of every Canadian University from Halifax to Vancouver. Organized labor also placed itself on record as being in favor of such a proposal. We feel, therefore, that public sentiment is solidly behind us.

In order, however, that it may be apparent to the Government that the business men of Canada are of one mind on this subject we would respectfully request your honorable Board to pass a resolution endorsing our petition and urging the Government to take action on the matter as soon as possible after the opening of the approaching session.

If you can see your way clear to oblige us we will be glad if you will forward one copy of your resolution direct to Sir Wilfrid Laurier and one copy to this office.

Enclosed you will find a copy of our memorial together with supplement containing a resolution on the subject adopted by the Annual Meeting of this Association in Winnipeg on September 19th last, and an extract from the report of the Executive Committee of the Trades and Labor Congress of Canada to the Annual Meeting of that body urging the importance of immediate action.

Mr. J. D. Allan, Chairman of the Technical Education Committee of the Board prepared the following report, which after being read was adopted by the Council on Nov. 8, 1906, and the Secretary was instructed to forward copies to Sir Wilfrid Laurier, the Ottawa Board of Trade, the Canadian Manufacturers' Association, and also to give the item to the press:—

ENDORSEMENT OF CANADIAN MANUFACTURERS.

On March 5th, 1901, a large deputation, consisting of delegates appointed by Boards of Trade from all parts of Canada, assembled in the rooms of the Ottawa Board of Trade and subsequently waited upon the Government to urge the importance of considering the question of Technical Education and to devise some means for the introduction of an efficient system of Industrial Training in all the Provinces.

Sir Wilfrid Laurier and other members of the Cabinet listened attentively to the arguments advanced in favor of energetic action along the lines suggested. The deputation emphasized the importance of such action upon the Trade and Commerce of the country.

The Premier expressed difficulty on the constitutional point of Provincial Jurisdiction in Educational matters, to which it was pointed out in reply, that the establishing of various Experimental Farms by the Dominion for the instruction of the Agriculturist was a precedent for the request made.

Since that time the Dominion Government has been active in extending support to many helpful adjuncts of Education that should find their place in a well considered system, but have not comprehensively dealt with the larger question to which attention was then directed.

The importance of the question stands first among our many problems and more than any other will directly effect the facilitating of national progress and develop the power of the Canadian people to compete in the world's markets. This will necessitate a preliminary training more ample and appropriate than in the past. In commerce and industry conditions are constantly changing and methods for preparing our people for their occupations must be invented with discriminating foresight, established with prudence and maintained with liberality.

A comprehensive system of Technical Education for Canada means the possibility of the utilization of much that is now wasted to the increased happiness of the individual and the enrichment of society.

Providence has endowed us with resources no other nation possesses. Shall it be said of us that we cannot develop our inheritance for want of expert artisans?—and yet it must be confessed we are at present in such a position.

National development depends upon the skill and resources with which the varied interests of our country are directed.

Prosperity can only find an abiding place permanently with our people when our industries are directed by the highest skill, which can only be attained by means of the very best system of Technical Education.

The remedy for existing hindrances to our industrial development has been very fully pointed out in the recent memorial of the Canadian Manufacturers' Association to the Dominion Government dated May 11th, 1906, for a Commission of Enquiry on Technical Education. The Council of the Board of Trade of the City of Toronto desires to endorse said Memorial and to support the Resolution reading as follows:—

> BE IT RESOLVED that the Dominion Government be requested to appoint a commission to report on the best method of establishing a comprehensive National System of Technical Education to provide Canadian Industry and Commerce with trained assistants from amongst the Canadian people and thereby aid in developing Canadian Industry.

We would further urge that early action be taken to accomplish the object of said resolution.

April 9, 1908.—Committee consisting of Messrs. Ellis, Watson and Gourlay was appointed to meet a delegation from the Canadian Manufacturers' Association and Labor organizations at the Board of Education to support the purchasing of the Western Site for a Technical School in place of the one selected by the Board of Education on Bloor St. East.

February 15, 1909.—Mr. Allan referred to the appointment of a Technical Education Commission, and the Secretary was instructed to look up what action the Board had taken in the past, also as to the elimination of Manual Training and Domestic Science from the Schools in Toronto; all of which was referred to the Technical Education Committee.

Feb. 23rd, 1909. *Re* appointment of Commission to consider Technical Education,—it was deemed wise by the Technical Education Committee for the Council to reaffirm the Board's action in the past and notify the Ottawa Government accordingly.

Feb. 25th, 1909.—Above action was approved at Council Meeting, and a letter was sent to Sir Wilfrid Laurier to that effect; also enclosing copy of resolution passed at Council meeting on November 8, 1906.

June 24, 1909.—The Secretary was instructed to write President Falconer expressing the Board's appreciation of his reference to a course in Commerce and Finance.

September 22, 1910.—Mr. Allan read Report of the Technical Education Committee outlining the action taken by the Board in the past. The Report was adopted, and referred to Messrs. Ellis and Gourlay as a sub-committee to present the case to the Royal Commission on Technical Education and Industrial Training at their Meeting in Toronto on October 4th and 5th.

FURTHER INFORMATION OBTAINED FROM MR. R. S. GOURLAY.

Trend of the Curriculum.

Mr. Gourlay said that the Toronto members of the Board of Trade were glad to feel that their work had been appreciated and that they had been a factor contributing to the progress so far made.

In the matter of our Secondary Schools, Mr. Gourlay gave it as the general judgment of business men that a mistake was made in shaping the curriculum so as to develop largely professional ambitions and direct the scholars' mind into professional channels, and in not providing a great deal for what might be called commercial training. Beyond the fundamentals the trend of the curriculum is towards the University course in Arts, or any one of the professions; so that although there is a Department of Commerce in the University, the number of students who attend it is limited. There is no influence of the system near the fountain-head, towards industrial or commercial training, but rather a barrier is put in the stream so that it all goes in the direction of professional training. To a large extent the commercial element is taken out of the High School and put into the Primary Technical School.

Demands of a Commercial Community.

Our community as existing today is overwhelmingly industrial or commercial, and yet our school curriculum reflects a condition that would fit a community in which the professional largely predominates. Technical Education must be instituted under conditions that meet local requirements, which would mean a

versatility of training according to the necessities of the district affected and the industries to be served. Industrial efficiency in itself is not the full measure of Industrial Education, an important part of which is the development of initiative and resource.

As Commerce has to do rather with distribution than production, it follows that the need of leaders is as great in the counting house as in the workshop, hence the necessity for Commercial Specialists. Recognizing this, the Special Committee of the Toronto Board of Trade in 1899 included in its report a curriculum for commercial training that has been received with the greatest favor, not only on this Continent, but in Europe.

Commercial High Schools.

If a wisely planned and somewhat extensive commercial course could not be incorporated in the present curriculum of the High Schools in a city as large as Toronto, he thought there ought to be certain number of High Schools set apart as Commercial High Schools. Their chief function would be to take the youth whose tendency is to commercial life and who ought to have been influenced towards commercial life—or rather not influenced away from it by the present trend of education—and give them an education that looks forward to their being leaders in commerce, in the handling of the products of the factory and farm and mill.

At present Canada is to a very large extent a self-containing Dominion, trading among ourselves; we have not got world-views to any great extent as to what can be done in commerce. In industries of and for natural products there is an export trade, but beyond that we trade within ourselves and even then do not trade as wisely as we might if our youth had the opportunity of going from an elementary school into a High School where they could follow that bent, and then go up and take a University course, which provided for a portion of the time at the University and a portion of the time in the counting-house. There is now a very patent gap between the Secondary School and the University curriculum that should be bridged in some manner if we are to get out into the world markets and meet competitors. At present we do not feel competition so much because there is a wall around us; but we ought to be doing some commerce in that great country south of us, South America. There are millions of people there, yet we do nothing; and will never be able to do anything until we are prepared by commercial training to do it. The desire is to aid the youth of our country, after they reach a certain point in education, to go forward in the development of their knowledge along commercial lines rather than those leading to law or to the other professions.

Industrial Pursuits Should Be Encouraged.

There appears to be a gap—which an effort is being made to fill—in regard to the influencing of the mind of the youth towards industrial pursuits. The world has become a great arena for commerce. Never in the history of the world before has commerce exercised so great an influence in all matters that bring us close together, and that are making for peace; yet to a large extent the inductive teaching

of the schools is towards the heroes of war and literature and art and history—in fact in every direction but the heroes of industry. The great leaders of industry are not brought prominently before the mind of the child in such a manner that their ambition are fired to be industrial leaders, to see that for the welfare of humanity a man like Stevenson has done a great deal more than any military general who ever lived. There is a great lack in our present curriculum. We have not in our school curriculum made progress along the line of essential things in many respects; and even in our primary schools there ought to be that inductive teaching, by the processes that the educationist uses, so that the mind of the youth will look forward with some degree of hope, if his tendencies run that way, to be a leader in industrial life as well as commercial life.

The Dignity of Labor.

There is a certain element growing up in our Universities now that looks down upon our commercial and industrial courses, the latter being despised even more than the commercial life. Now, these three elements of our life should be on a plane, and the educational system, even from the primary class up, should be upon such a basis that the leaders in all departments, so long as they are good men, should stand on an equality; but that element in our school is not taught as it should be. The difficulty is that the teachers have all been trained in one direction, and we must get to work and educate the teachers; but industry and commerce will never be put on its proper plane until we have the idea from the beginning that the heroes and the great men and the industrious men in those two channels are just as great in the sight of Providence and in the sight of the nation as men in some of the professions.

Cannot Drive A Nail.

If the ordinary boy and girl could learn to handle the ordinary tools that are necessary in every mechanical calling a great step would be taken. It is surprising to find how many people cannot drive a nail in straight; they will drive it across the grain of the wood, they know so little about elementary things in mechanics. Manual Training is one of the essential things. The trend is towards the recognition of social service rendered even in obscure spheres. Unfortunately we have not got our press as ready to recognize that, because it does not make as fine a paragraph; but it is coming. It would be exceedingly good to have a textbook on the development of industry if made general and comprehensive. It would inspire students to ambition in the direction of following in the lead given. There is a great field open just in that line, in which nothing is being done to any great extent. Mr. Gourlay would also favor the teaching of how and by whom wealth is produced and distributed.

Fundamentals Lacking.

A common definition of Technical Education as it is now being discussed would be, "Instruction in the principles of Science and Art as applied to industrial and commercial pursuits."

In higher Technical Education, as illustrated by our School of Practical

Science, which has done such brilliant work for so many years in graduating a fine class of specialists in the various classes of Engineering and Metallurgy, we have had practical evidence of the value of such training; but our lack has been in a lower grade of technical instruction for which our educational system has made as yet but little provision, and thus denied the artisan the opportunity of improving himself in the pursuits in which he is vitally interested. Practical work he may have had, but the application of scientific principles to improve methods of reaching results have been wanting, and here is a gap that should be filled.

A noted educator asked, "Is education in our schools for the purpose of preparing our boys and girls for a civilization that has passed away, or for one present with us today?"

NEED OF COMMERCIAL TRAINING.

Mr. James F. Ellis, also representing the Toronto Board of Trade, said: I would like to impress upon you the importance of commercial education. Production and distribution go hand in hand. A man may understand thoroughly how to produce an article, but he will woefully fail if he knows nothing about its distribution. A commercial education is Technical Education, just as much as is training for any trade. Today the youth have not an opportunity to be trained in that way. We are all the time looking for young men for offices and warehouses that have some commercial training, and fail to find them. Those applying for positions at 16, 17 or 18 years of age do not really know what a bill of exchange is, or understand notes and discounting. They may know a little about bookkeeping, but in the practical part that every business man must understand in order to carry on his business, they know little about it. Some can write nicely, though that is not common. They are very good at figures, but when it comes to practical business training they have no knowledge of it whatever, and they have to learn the whole of that in the counting-house.

A Certain Man Had Two Sons.

Suppose an artisan who loves his trade has two sons, and he would like one to be a manufacturer of goods and the other to distribute those goods, knowing that in this growing country they could start for themselves and do a flourishing and prosperous business. Where could those two sons go to get the necessary training? They get what is called an English education at the Public School. On entering the High School they find no one in sympathy with their wants; they get no training that will fit them for what their father expects them to follow; they get discouraged and feel they are wasting their time, and it is very difficult to keep them. There should be some scheme by which those youths could acquaint themselves thoroughly with everything in the way of a business training. Many subjects are necessary; they ought to know all about the different weights and measures of different countries; about foreign money and its value; and they should get this in the schools which are for the many, and not have to wait for the University. Some method must be devised by which youths can get this training in their own towns or cities, as they cannot afford to go a distance.

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CHAPTER LVI: OTHER BOARDS OF TRADE AND TECHNICAL EDUCATION.

(1) THE OTTAWA BOARD OF TRADE.

On 26th April, 1898, a Committee was appointed by the Ottawa Board of Trade for the purpose of drawing up a plan and devising ways and means for establishing technical education in Ottawa with the especial object of furthering the manufacturing interests, and thereby those of the whole community.

After organization, and on the 13th June 1898, a sub-committee was appointed "to draft a report of recommendations and statistics as to the formation of a technical school in this City."

On the 15th of November, 1898, a public meeting was held in the City Hall for the purpose of hearing Mr. J. W. Martin, a lecturer on educational and soc al questions, of London, England, on the subject of Technical Education with special reference to the system established in Great Britain, at which meeting the following resolutions were adopted:—

Resolutions Favoring Technical Education.

(1). That in the opinion of this meeting of the citizens of Ottawa a system of Technical Education should be established in Canada so as to encourage the production of skilled labor, the growth of manufactures, and the development of our great natural resources.

(2). That this meeting heartily commends the action of the Board of Trade in constituting a committee on Technical Education, expressing at the same time their earnest hope that a definite scheme for establishing an efficient Technical School in this City will be formulated at an early date.

On February 27, 1899, the Chairman was directed to report progress to the Board; and it was further directed that the sub-committee charged with that duty be requested to submit a definite scheme for bringing a Technical School into practical operation.

On March 6th following, the sub-committee appointed to draft a scheme or plan for the inauguration of Technical Education reported substantially as follows:—"That the inauguration of Technical Education, as vitally affecting trade and commerce, is a matter of national import, and hence deserving the serious attention of the Federal Government. It is therefore deemed advisable that a circular be sent to the various Boards of Trade throughout the Dominion asking their opinion, and soliciting their co-operation in taking such steps as may lead to the systematic introduction and successful establishment of Technical Education."

The report to this effect was adopted and reported to the Council of the Board, with a draft circular in the terms indicated, and suggesting a convention of representatives of other Boards of Trade to be held at as early a date as possible at Montreal, Toronto or Ottawa, to discuss and formulate a plan.

THE CIRCULAR LETTER.

OTTAWA, March 7th, 1899.

To The Secretary of the

Board of Trade,

Toronto, Ont.

Sir:—

You are doubtless aware that the question of the establishment of Technical Education has become one of National importance. It is generally admitted that if Canada is to hold her own in the great industrial warfare now in progress amongst nations she must be equipped with the necessary means for training her own population to enter into the arts and manufactures.

The question of Technical Education will most likely seriously affect the future prosperity of the Dominion. We cannot be called a manufacturing country, for the export of our manufactured products is small in comparison with our imports.

Canada pays millions every year to the superior artists and artisans of other countries, every cent of which represents a foreign tax voluntarily paid in consequence of ignorance and want of skill at home.

We cannot depend on private liberality in this young country, to organize and support an adequate system of Technical Education. The generous provision for all such instruction made by many European countries is regarded as one of the most pressing of public duties, and may be followed by us with profit.

In the United States also, Technical Education has made great strides during the past few years, largely through business organization and private munificence; but the American people have become so aroused to its importance that schools of technology are springing up in every State of the Union; some by private aid, such as the Philadelphia Textile School, others by Municipal and State aid.

The success attending the efforts of the Toronto School, and the less pretentious one in Ottawa, is evidence of their necessity and of the hunger of the people to obtain technical and scientific knowledge.

With those facts before us, and realizing the possibilities of our unrivalled natural resources, we believe the time has arrived when an opportunity should be furnished our people to develop the many fields of industry within our borders.

This is a matter of Trade and Commerce, and comes primarily within the scope and section of the Federal Government, just as agriculture is promoted by our Experimental Farms, Dairying by our Dairy Stations, and Mining by our Geological Survey.

The object of this circular is to ask the opinion of your Council as to the first step to be taken. We assume, of course, that any system of Technical Education should be National, i.e. aided by State as in Germany, France, Switzerland, Belgium, Austria and England.

It is felt that no time should be lost in making a beginning. Would your Board therefore approve of a convention of representatives of different Boards of Trade at as early a date as possible at, say, Montreal, Toronto or Ottawa to discuss and formulate a plan?

I have the honor to be, &c,

(Sgd) CECIL BETHUNE,
Secretary, Board of Trade.

JOHN COATES,
Chairman of the Committee.

This circular drew a favorable response, nearly every Board concurring, but some not seeing their way clear to sending a representative to the convention proposed.

PROVINCIAL ACTION FAVORED.

The answer from the Toronto Board was in an important sense exceptional. They had taken the ground that Technical Education should be dealt with Provincially, and intimated that the Hon. Mr. Ross, then Minister of Education, would address their Board, giving the date, and that they were asking all the Boards of Trade in the Province (Ottawa included) to send delegates to take part in the contemplated proceedings.

In answer to this correspondence, the view of the Ottawa Board as expressed in their circular was upheld, and the invitation to send delegates to Toronto was accepted. There were thus discovered divergent views; the Ottawa Board being in favor of Federal inauguration, and the Toronto Board taking like ground in favor of Provincial action.

The Toronto convention was held on the 6th June, 1899, Mr. Crawford Ross attended as a delegate, representing the Ottawa Board, with instructions to lay before the meeting "our views as to the National importance of the movement from a Trade and Commerce point of view."

The movement by the Toronto Board in behalf of Provincial action for Technical Education had the effect of delaying the carrying into effect of the Ottawa Committee's proposed convention in favor of Dominion action until it became too late to carry out the original plan of holding it during the session of Parliament. It was then thought expedient, and directed by the Ottawa Board's Committee at their meeting on June 8th, 1899, to invite those who had been nominated as delegates and were in attendance upon Parliament then sitting, to attend a meeting of said Committee "for a general discussion on Technical Education."

APPOINTMENT OF A DOMINION COMMISSION URGED.

The intervening of the summer holidays delayed further action until the meeting of the Committee on Oct. 12th, 1899. At this meeting the idea of holding a widely representative convention was in effect abandoned by the adoption of a resolution moved by Dr. Glashan, seconded by Mr. Ballantyne, and at a sub-

sequent meeting in an amended form moved by Mr. Shannon, seconded by Mr. Warren Greene, that this committee wait upon the Dominion Government for the purpose of urging the appointment of a Commission to investigate the question of Technical Education. This action on the part of the Committee was reported to the Board, and the report was adopted.

Acting upon this authority, the Committee prepared a memorial to His Excellency, the Governor-General-in-Council, submitted it to the several Boards of Trade throughout the Dominion, obtained the appreciative sympathy and concurrence of nearly all of them, and the acceptance, by a large number, of the invitation to be represented when the memorial should be submitted.

The carrying to a conclusion of this correspondence occupied a great part of the following year, 1900, when it was thought advisable to defer waiting upon the Government until the session of Parliament 1901.

Deputation Waits on Federal Government.

On March 9th, 1901, a deputation, representing the principal Boards of Trade throughout the Dominion, primarily recommended by the Ottawa Committee on the 12th October 1899 to wait upon the Government in the interest of a National scheme of Technical Education, assembled under the auspices of the Council of the Ottawa Board. The deputation was a large and representative one. The prepared memorial was presented, and individual members of the deputation addressed the Prime Minister and the Minister of Agriculture. The point was raised by the Prime Minister that education was one of the subjects reserved to the control of the Provincial Governments exclusively. It was submitted by the deputation in substance that it was general or scholastic education that was remitted to the exclusive authority of the Provinces; that Technical Education was incidental to the trade and the industries of the country; and that in the promotion of trade and commerce the Dominion would have the right to promote also whatever was contingent on or auxiliary to trade and commerce. The Prime Minister assured the deputation that their views would be considered, and asked that he be supplied as early as convenient with whatever further information or representation the deputation might think would have weight in the case.

Pursuant to this, on 9th March, 1901, a sub-committee was appointed to take such steps as might be necessary to obtain an answer from the Government upon the subject of the memorial presented *re* Technical Schools. This sub-Committee prepared and forwarded to the Prime Minister a memorandum setting forth in further terms the views of the Committee, and asking for an early and definite reply to the memorial presented on the 9th of March.

The Special Committee of the Ottawa Board, whose report of June, 1903 is above summarized, notes that "the Manufacturers' Association at their Convention in Halifax in June last took the same ground as this Committee, and passed a resolution favoring Federal control and the appointing of a Commission, and appointed a deputation to wait upon the Government during next session of Parliament."

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(2) THE CHATHAM BOARD OF TRADE.

The following report from the Committee appointed to bring in resolutions regarding the attitude of this Board on Technical Education, was adopted unanimously at the meeting of the Chatham Board of Trade on Jan. 19th, 1911.

"We recommend that the following resolutions be carried, and a copy thereof be sent to the Royal Commission now investigating the subject of Technical Education in its various branches:

Moved by Mr. Landon, seconded by Mr. Norris:—

1—That the Chatham Board of Trade, after due investigation, approve of Technical Education as applied to the Schools of Practical Science and Technical Schools as now exist for that purpose, and would not suggest interfering with their present work in any manner.

2—We are in favor of the establishment of Manual Training as far as is practical in the senior classes of Public Schools.

3—In our opinion the most important thing to be done is to establish a series of trade schools throughout the country, which would operate as a link between the Manual Training and Public School and the higher grade mentioned in Clause 1; said schools to be located in the larger manufacturing towns and cities, one in each county, where the Town or City and County contributes toward the maintenance of such a school when added to by the Local and Dominion authorities sufficiently to properly maintain and carry on such a school. These amounts to be calculated upon a *pro rata* basis so as to distribute the burden as nearly equally as possible between the County, the Town or City, the Local and Dominion Governments, and such contributions as may be got from the local manufacturers where said school is located.

4—That in our opinion the establishment of these schools will revive on a larger and broader basis the apprentice system, now fallen into disuse on account of the fact that parents are unable to afford to apprentice their children for a number of years at practically no wage, and also because factories no longer make provision for the training of apprentices, and legislative enactments prevent the employment of children under certain ages. It is our opinion that all children should have an opportunity to acquire as far as possible, at the schools of this country for educational purposes, such education including the rudiments of a trade or calling that the pupils may wish to make their life work consist of, whereas as schools now exist, these moneys are devoted largely to the extension of higher education, which to a very large extent, the children of the larger mass of the people are unable to participate in.

5—That in our opinion it is the duty of this country to furnish such educational facilities in this direction as will enable us to turn out a high-class artisan, so we may not suffer in the competition which this country has to meet with all other countries of the world and their skilled mechanics where these trade schools now exist to a very large extent.

(3) THE SAULT STE. MARIE BOARD OF TRADE.

This Board, representing important industries not surpassed by any similar ones located elsewhere in Canada, submits a memorial, signed by J. D. H. Browne, President, and F. A. King, Secretary, stating that no community in Canada can feel the necessity of and the benefit to accrue to every phase of life represented in it from the technical education of its sons and daughters more than Sault Ste. Marie.

They heartily approve of Domestic Science being widely extended, and for all classes throughout the country. While the man, the worker, may bring in the money, it is at least equally important that the wife should know how to manage it to the best advantage, so that from its outlay the strength, health and well-being of the man may be conserved and built up; that his earning power shall not cease, but rather increase; that by its outlay the family, with the aid of modern knowledge may be improved physically and mentally and, perchance, morally and financially. To paraphrase an old adage, "It is not what a man makes, but what his wife saves." The day is now here when the man or woman with scientific knowledge of food values can expend the family income to the advantage of the family to an extent immeasurably greater than was the case half a century ago.

They appreciate the great work which has been, and is now being accomplished by Agricultural Colleges. This, outside of training for the professions, would appear to have been the earliest attempt here at technical education. The country needs more of it. To-day, practically speaking, the farmer must seek the College; but throughout Canada it should be that the College, or better speaking, the technical knowledge, would seek the farmer and pursue him until he is in its grasp, and it in his, so that he will possess the requisite knowledge to gain out of his every day's work the great return which science to-day affords him. The knowledge of the Colleges must go out to the farmer on his farm. This is done to a limited extent now, in Ontario at least, but the system should be greatly extended. The farmer is diffident and does not care to go to College or to push himself forward; in many instances he has not the means to take the College course, and in others he has not the necessary learning either to attend College or to get the utmost benefit from the agricultural pamphlets issued by the Local and Federal Governments. The greatest good would follow from the location in townships of skilled and otherwise competent agriculturists, whose services should be at the call of the farmers to actually assist them in choosing the proper soil, and in fertilizing, preparing and caring for it and the crop which may be sown. The large majority of farmers would learn more by this means than in any other way.

The Dominion Government is directly and solely interested in dealing with the wards of the Government of the various Indian bands and their reserve. In every section of this country will be found Indian Reserves, in every instance consisting of a large extent of territory, many composed of excellent agricultural lands; but unfortunately in the majority of cases under no cultivation at all. This should not be. The white man has shouldered the original inhabitant to one side; has ultimately penned him in on his Reserve, to be, or not to be, a "farmer", as his inclination and opportunity permit, and in any case to eke out his miserable

existence as "a hewer of wood and a drawer of water" for the white man. The theory of Reserves, at least in part, is that the Indian will make his livelihood out of the fruits of the earth, that is, out of agriculture, for the treaty money paid him is a mere pittance. But the Indian is not naturally a farmer. Neither can we boast of that. We believe if the Indians were given instructions as outlined above, great good to them might be accomplished. The work would be slow. It might take a generation to accomplish much. But under present conditions, what is a generation accomplishing for the Indian? And when the work was done, it would be to the economic benefit of the whole country, and otherwise a source of national pride; and last, but not least, the Indian would be raised to a new plane of existence.

As citizens of a community in which are such important industries as the Steel Works, Blast Furnaces, Chemical Works, Pulpmills and others, it would be strange if we did not recognize the benefits to accrue from the Technical Education of the present and future workers in these industries. Ample evidence will be afforded of the importance of this subject to Sault Ste. Marie from an inspection of these industries, and also from important evidence given before the Commission by the various heads of departments and others interested.

We believe our country must go forward along these lines. As citizens we wish her to do so. Germany, and particularly Saxony, stands today an object lesson to the world of the benefits of industrial and Technical training. As a result thereof, she not alone disputes for the Industrial supremacy of the world but she has made of her citizens an object of admiration throughout civilization. It necessarily follows that from technical education the citizen will be otherwise improved. While his technical education is devoted to some one particular branch of industry, the capacity of his mind is expanded, it must absorb other knowledge and a general improvement must take place. Moreover, the man is self-reliant as a result of this technical education. With him theory and practice go hand-in-hand. He knows his subject, is master of it, and that mastery makes a new man of him, and broadens his very being. There is something new in his life which before was lacking.

The Board of Trade of Sault Ste. Marie takes the stand that it wants Canada to show the way to the world in the matter of Technical and Industrial Training. As a nation, "We've got the possibilities, we've got the men, and we've got the money too."

(4) THE FORT WILLIAM BOARD OF TRADE.

Reports from the several lines of trade in this City show a dearth of trained woodworkers, metal workers, and in short of educationally-equipped tradesmen. This is a result, we believe, of the extinction of the apprenticeship system. The young men of Fort William show an aversion towards entering factories and workshops where they will be required to give their efforts for three, four and five years for a nominal salary. Should this state of affairs continue, the country will be unable to produce its own trained workers, and it is in an effort to provide a substitution for this apparently objectionable apprenticeship system that the Board

of Trade advises the immediate establishment of Technical Training in the schools of Fort William.

Records show that only 7½% of public school children in this City pass from the public schools to the high schools. It would therefore seem advisable that this Technical Education should be started in the public schools when the pupil is about twelve years of age.

In all branches of trade certain fundamental education is necessary, and among the lower classes this should begin along the lines of mechanical drawing, pattern making, and the use of tools, square and compass. The higher classes should have to apply these principles in a practical workshop where tools for wood and iron working would be available.

Of course it can be readily understood that apprenticeship to some extent is absolutely necessary for the training of mechanics, but there might be some curtailment in the number of years necessary before the young man is turned out a finished journeyman. If the fundamental principles of geometrical drawing, mechanical drawing and pattern making, and the use of primary tools, are contained in the public schools curricula, the youth will have an excellent start on which to build.

The Board of Trade is not exaggerating in saying that of all the wood workers, tinsmiths, iron moulders, and mechanics of all kinds in the City, there are but few who know the business thoroughly. It has been learned that numbers of carpenters doing business here lack full knowledge of their trade, and tinsmiths and other tradesmen have only stayed long enough as apprentices to obtain sufficient knowledge to allow them to get out in a country where there is a shortage of skilled labor and work as journeymen.

The Board therefore recommends: (1) That steps be at once taken for the inclusion in Public Schools of technical training embracing the basic principles of geometrical drawing, mechanical drawing, pattern making, electricity, chemistry, etc.; (2) That higher classes should be set aside for manual labor, where the theoretical principles laid down in the preparatory classes could be applied to the actual handiwork.

(Signed) JNO. MURPHY, *President*,

GEORGE W. GORMAN, *Secretary*.

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CHAPTER LVII: THE EDUCATIONAL COMMISSION OF TORONTO.

During 1910–11 this Commission, representing the Board of Trade, the Trades' and Labor Council, and the Canadian Manufacturers' Association, organized with the approval of the Board of Education, studied the needs of Toronto primarily with a view to advising the Young Men's Christian Association as to the educational equipment which it should place in the new buildings then about to be erected. It was hoped also that the findings might be of value to the general cause of education in Toronto.

The duties of the Commission were defined as follows:—

"The Commission shall inquire into and report upon the conditions and requirements of commercial and industrial education, particularly of the boys and young men in the City of Toronto, and upon how these needs may be met. The Commission shall also indicate how the Young Men's Christian Association may co-operate in providing for such educational needs."

For the purposes of their study the work of the city was divided into six groups, viz., Professions, Manufacturing Industries, Building Trades, Wholesale Businesses, Retail Businesses, Financial Houses.

The first group (Professions) was not studied, this being considered to be already provided for.

The second group was studied with the co-operation of the Canadian Manufacturers' Association. From their trade index a list of the manufacturing firms of the city was compiled and classified according to the kind of goods produced.

The following are the groups:—

1. Iron Industries.
2. Cabinet Makers.
3. Packing Houses.
4. Confectioneries and Bakeries.
5. Brass and Copper.
7. Brick and Tile.
8. Textiles.
9. Chemicals.
10. Garments.
11. Electrical Apparatus.
12. Jewelry.
13. Metals.
14. Paints and Varnishes.
15. Paper.
16. Piano and Organ.
17. Plumbers' Supplies.
18. Rubber.
19. Woodworkers.
20. Upholstery.
21. Glass.
22. Tin and Enamel Ware.
23. Soap and Perfumery.
24. Grocers' Supplies.
25. Printing and Publishing.
26. Breweries.
27. Metal Roofing.
28. Cereals.
29. Dairy Products.
30. Vehicles.

A questionnaire, together with a letter from the Secretary of the Manufacturers' Association, was sent to each firm on the list. It was considered that the questionnaire would form the basis for the study of the individual industries. The attempt was then made to select a man who would be in close touch with each industry and who would be willing to co-operate with the Commission in investigating its educational needs. The response made was quite satisfactory.

In the third group (Building Trades) the same method was followed, the Builders' Exchange co-operating. Groups Four and Five were not specially studied. In connection with the Financial Houses, investigation showed that,—

Young men enter financial houses usually at the age of 18;

The details of their technical training are received in the general work of the office;

There is need that these young men be given an opportunity to become familiar with the broader questions which enter into the businesses of a financial house;

The following course should be included in any attempt to provide for this need.

(*a*) Outline of the Industrial History of Canada, including its economic geography and transportation.

(*b*) Banking, including Trust and Loan Companies, Stock markets, Investments, etc.

(*c*) Commercial Law, with reference to Canadian banking and business practice.

(*d*) Mathematics of Life Insurance.

It was distinctly the opinion of those present that such a course should be conducted by the Young Men's Christian Association, at least until the City Board of Education were able to completely fill the need. In regard to the earlier training of young men for commercial positions, the members of the conference were strongly of the opinion that the penmanship and spelling of young men leaving our High Schools at 18 years of age was not up to the standard demands for business purposes.

THE REPORT OF THE COMMISSION.

The Report of the Commission, issued in November, 1911, after dealing with the commercial phases of the problem, states:—

Complexity of Industrial Classes and Training.

The second class of the community to be considered by the Commission was the industrial class. This class was taken to include those engaged in the manufacturing industries and in the building trades. It is more complex in character than the commercial class, and that complexity gives a corresponding complexity to the problem of industrial training. It is one problem in the highly-skilled trades, another in a specialized trade; one in a piece-work trade, another in a day-wage trade; one in a trade housed in a factory, another in the outdoor building trades. It is affected by the flow of immigration, by local conditions as to the

size of factories, and scales of wages, and by the differing ages and mental and physical equipments of the boys who enter the trades. It varies with each trade.

Apprenticeship Disappearing.

For centuries the sole and the efficient agency for industrial education has been the apprenticeship system. That system is fast disappearing. It is unnecessary to dwell upon the industrial conditions that explain the disappearance, the factory system with its aggregations of capital, the sub-division of labor, the automatic machine and piece-work. It is enough to say that it is disappearing and in its old form it can never be restored.

What the Craftsman is Losing.

In the disappearance the craftsman loses much. The apprenticeship system took charge of the boy early in life and evolved the craftsman out of years of slow and patient training. That training was physical as well as mental, co-ordinating action and thought, body and mind, boyish activities and the realities of life. Fine personal sympathies between master and apprentice gave to the apprentice a sense of responsibility which is impossible where competition leaves little room for sentiment. Resourcefulness born of the many-sided activities of the apprentice, and independence born of his economic equality and fraternity and all-round skill cannot thrive in the presence of the automatic machine and piece-work.

Gulf Between Skilled and Unskilled Trade Widens.

The fact that industrial training is as complicated as the trades themselves, that the greatest agency of industrial training is disappearing, that this disappearance carries with it some of the noblest characteristics of the craftsman, does not tell the whole story. The industrial world for which the craftsman is trained is changing rapidly. One change takes two opposing directions. There is the demand for more knowledge and more skill. The division of labor has made many trades more exact. The applications of science have created many scientific and highly-skilled trades. The factory system is creating a new need for the expert, the foreman, the director. And there seems to be a contrary movement. The automatic machine replaces the skilled man; the machine operator replaces the many-sided workman, and the factory system supplants the handicrafts. Thus displaced, craftsmen tend to become machine operators or laborers, a great host whose ranks are swelled by immigration and by the influx of the uneducated and neglected. A widening gulf then separates the highly-skilled from the low-skilled workers. The lack of opportunity or education, or the vicissitudes of the industrial world force men into the latter class, and the organization of modern industry makes it difficult to escape. Men may still bridge the chasm through character, knowledge and skill.

Substitutes for Apprenticeship.

Modern industrialism is evolving substitutes for the apprenticeship system. One substitute is a form of apprenticeship with a narrow range of work, aiming at a special type of skill. This apprenticeship is often brief, without age restrictions and without indentures. Occasionally it assumes very worthy forms when in the shop itself, for instance, it offers the apprentice systematic training in drawing, mathematics and technical subjects, or when it sets apart an officer whose sole duty is the training of the apprentices.

Another substitute is the "helper" system. Helpers are unskilled workmen who assist skilled workmen or attend machines. Sometimes, as in the building trades, they begin to work as mature men and often remain as unskilled labor. Sometimes, as juniors, "helpers," "improvers," or "handymen," they pass from odd jobs or unskilled trades up and on to the more skilled.

The third substitute is not uncommon in the great factories where labor is minutely sub-divided as in the textile trades, and boot and shoe trades. Here beginners, who are not indentured as apprentices, are set at simple operations and advanced successively to more difficult operations, until they reach the operation in which they are of most value to the factory, or in which the limits of their ambitions and capabilities have been attained. That operation becomes their trade.

Substitutes Reveal Need of Industrial Training.

All these substitutes emphasize the inadequacies of the present-day forms of industrial training. To meet the conditions of modern industrialism, the youth must know more *before* he enters the factory, and in some way must learn more *after* he enters the factory. What he must know or what he must learn has been variously described to the Commission. He must be a good citizen. As such, he must know something of the customs, laws and ideals of this country. But he is also to be a good craftsman. As such he must have a trained industrial intelligence. Expressed more concretely, good craftsmanship implies something of the inventive genius, or artistic skill of the creator or designer, more familiarity with the properties of materials, wood, metal, etc., and with the treatment of raw materials under the laws of chemistry, physics, etc., some conception of industrial organization, some ease in the manipulation of quantities and estimates, and some skill in fundamental methods and processes.

THE COMMISSION'S SUGGESTIONS.

After dealing with the efforts of various agencies in Toronto to meet the needs of commercial and industrial workers, including the High School of Commerce and the Technical High School, the Commission suggests:—

What the Young Men's Christian Association Might Do.

The Association should not offer instruction which involves very expensive or extensive equipment. This is the city's duty.

The Association should supplement, rather than imitate or duplicate the work of the public educational system. This does not mean that it must never

offer the same subjects of instruction as the public system. It may, reasonably, do so, for special groups of students not served by the public system, or at special hours or in special parts of the city. But in the main, the Association should find its particular sphere where the public system is inadequate, or fails, or neglects.

There is much uncertainty about the methods of training workmen. Only careful experimentation will remove that uncertainty. With its flexible administration the Young Men's Christian Association is well prepared to experiment with new, untried and even doubtful methods and subjects. In this connection it can render a great service to the community.

In view of obvious restrictions in equipment, time, the age and purpose of students, single subjects should be offered rather than elaborate courses. The subjects, however, should be arranged if possible so as to permit students to pursue a graded or consistent course from year to year, if so desired.

For similar reasons, the instruction should be brief and highly specialized, practical rather than theoretical, closely related to the art or craft of the students, and offered, as far as possible, to individual students, or to very small classes.

THE RECOMMENDATIONS.

In the light of these principles, your Commission recommends:—

1. That the Association continue its instruction in elementary commercial subjects, *viz.*, spelling, composition, arithmetic, shorthand, typewriting, business forms, etc., and that it expand these courses in accounting, banking, and exchange, commercial geography, history of commerce, economics, laws of insurance, etc.
2. That co-ordinate with the elementary commercial courses, it offer for youths who have chosen industrial courses, elementary vocational training, such as woodwork, metal work, drafting, etc., and that it expand this training when and where possible, into special short courses for men in the industries and building trades, *e.g.*, courses in estimating, use of the square, reading blue prints, strength of materials, etc.
3. That it supplement its regular commercial and industrial courses by irregular and brief courses for special groups of men to meet the needs arising from time to time in modern communities, *e.g.*, gardening, automobiling, photography, chemistry for laundry men, law for insurance men or real estate agents, etc.
4. That the foregoing courses of instruction be offered, so far as possible, under the following conditions:—
   - (*a*) The instructors should have practical experience and skill.
   - (*b*) In the direction of the instruction the Association might be advised by a Board or Committee representative of both employers and employees, whose co-operation is essential.
   - (*c*) The work of instruction should be supplemented by
     - (1) A Vocation Committee, conversant with the industrial needs of the community, which will assist students in securing employment without disturbing existing conditions and wage schedules and without developing into an employment bureau for profit.

(2) An After-care Committee which will keep in touch with students who have completed courses of instruction.

(3) A professional library, specially selected for commercial and industrial workers, and, in particular,

(4) Much missionary work in behalf of commercial and industrial education.

This last obligation—to convince Toronto that technical education is worth paying generously for—is an obligation that few agencies can fulfil more effectively than the Young Men's Christian Association.

Your Commission believes that the Young Men's Christian Association has done and can do other very valuable educational work. The "laggards" and "misfits" and "irregulars" of our schools sometimes awake later in life and seek private or semi-private instruction in the elementary school subjects. The number of the foreign-born who must learn the English language grows apace in Toronto. Many boys have a wholesome interest in the constructive subjects such as gardening, manual training, printing and book-binding, which persists beyond the school life. This great city contains many youths whose days are appropriated to the necessities of a livelihood and who are eager to devote their nights to advanced study for general culture or for matriculation into professional schools. All men, in particular all citizens, must meet and understand problems of public health, finance, civic government, etc., for which the school can offer little or no training. But the forms of educational effort implied in these conditions seem to lie outside the terms of your instruction, and your Commission cannot therefore include them within its recommendations.

This Report is signed by,—

W. Pakenham,
Fred. Bancroft,
Rhys D. Fairbairn,
G. A. Howell,
R. H. Verity.

SESSIONAL PAPER No. 191d

CHAPTER LVIII: AS TO OTHER Y. M. C. A. CLASSES.

The following communications indicate the kind of work done by the Young Men's Christian Associations:—

The educational work done by the Association in Toronto and elsewhere is typical (with modifications) of what is done in most of the towns where these organizations operate.

The Young Men's Christian Association in Toronto is conducting night classes on the following subjects,—Bookkeeping, Shorthand, French, Penmanship, Show Card Writing and Design, Salesmanship, Public Speaking, College Matriculation. They also have schools for Jewelry Workers' Apprentices and Carpenter Apprentices.

The Y.M.C.A. has night classes in Belleville, Brantford, Collingwood, Galt London, Peterborough, Port Hope, St. Catharines and Stratford and other places. In these the most important vocational courses are the commercial subjects, mechanical drawing, shop arithmetic and sign writing.

Co-operation of Y.M.C.A. with Industries at Kingston.

Mr. E. F. Trimble, General Secretary Y.M.C.A., Kingston, writes:

I beg to offer the following suggestion regarding the question of getting young men to attend night schools.

I was much interested in the evidence taken before you, and given by the Managing Director and the Assistant Superintendent of the Canadian Locomotive Co. here. In view of statements made by Mr. Birmingham and Mr. Yellowley, I feel that the Y.M.C.A. in Canada can do considerable towards removing obstacles such as those mentioned by these gentlemen relative to attendance at night schools.

Take the same Company as a case in point. They are subscribers to our work in Kingston. After hearing the evidence as given by their representatives, I proposed to them today that they present full Y.M.C.A. membership tickets to a number of their apprentices, conditionally on their taking a course of study in the Y.M.C.A. night school, such course to be as ordered by the Superintendent of the works.

Our Association would be glad to have them take this step, and would be quite willing to grant them a limited number of such tickets on their subscription. I also suggested that Mr. Yellowley take part of the teaching of such course, following up his statement to you that he would be willing to spend two nights a week at such work.

It seems to me that this plan will be, to say the least, enticing to the young men in their employ, owing to the many and varied privileges offered by the Young Men's Christian Association, and as the night classes are taught by the most thoroughly practical men available, it should be productive of great good.

Providing an apprentice fails to attend a given number of the studies, he forfeits his privileges as a member of the Y.M.C.A., and his membership is then turned over to another apprentice.

Mr. Yellowley is quite taken up with the suggestion, and will immediately see what can be done in the matter as far as their employees are concerned.

I trust that this proposal may cause you to look further into the benefits and opportunities for young men as offered by the Y.M.C.A.

Y.M.C.A. Night Classes in Galt.

Mr. Wm. R. Cook, General Secretary, Y.M.C.A. Galt, sends the following statement regarding class in Mechanical Drawing conducted in the Public Library Building, Galt, by the Young Men's Christian Association, season 1909–1910:—

Enrolled in elementary class; 1 student, 2 Pattern-makers, 5 Machinist Apprentices, 1 Fitter Apprentice, 3 Machinists, 2 Laborers, 1 General Mechanic, 1 Office Boy, Total 17. Enrolled in advanced class;—2 Apprentices, 1 Laborer, Total 3. Nine students tried International Y.M.C.A. examinations, eight passed.

Topics: First season—Drawing instruments, their use and care; simple projection, including front, top, and side views of rectangular solids with dimensions; working drawings of simple objects, as of wood joints; development of simple surfaces, plane and curved; patterns; screw threads, true and conventional, bolts and nuts; freehand dimensioned sketches of simple objects and parts of machines; working drawings of machine details, full size and to scale, as pulleys, sheaves, clamps, pipe elbows, tees, wrenches, couplings, and others; practice in lettering.

Second season– Working drawings of machine details as lifting jack, hangers, pillow-block, etc., with dimensioned sketches; inking and tracing in ink; full set of working drawings of a complete simple machine ready for the shop, as a bench lathe or small engine. The students' work in the second season's examination is accompanied by thesis drawings of some simple machine or piece of mechanism. All of this thesis work—design, measurements, sketches, lettering—is entirely that of the student.

Receipts from students' fees $34. Expenditures, Teacher $40. Rent of Room $6. Blackboard $10. $56. Advertising, supervision etc not reckoned.

SESSIONAL PAPER No. 191d

CHAPTER LIX: INQUIRY AT BERLIN: A TYPICAL CITY IN ONTARIO.

The following record, practically in full, of the inquiry at the Commission's sessions in Berlin, Ont., is presented as being typical and illustrative of the nature of the inquiry and the testimony received at other places.

NAMES OF WITNESSES.

First Day, Friday October 14, 1910.

Charles Hahn, Mayor, and President of Trades and Labor Council.
J. A. Scellen, President of the Board of Trade.
John C. Breithaupt, Owner of Tanning and Leather Works.
George Lang, Owner of Tanning Works.
Samuel J. Williams, Manufacturer of Shirts, Collars and Cuffs.
Robert S. Porteous, Manufacturer of Furniture.
Fred Davey, Clerk in a Watch Factory.
David Gross, Jr., Assistant Superintendent of a Button Factory.
August Werner, Druggist, and Secretary of the Trustees' Department of the Provincial Teachers' Association.

Second Day, Saturday, October 15, 1910.

Frank Hodgins, Superintendent at Williams, Greene & Home Company, Clothing Manufacturers.
Robert Y. Stuart, Foreman of Machine Shop, Waterloo Manufacturing Company.
Fred William Sheppard, Inspector of Public Schools.
Walter H. Williams, Acting Principal, Collegiate Institute.
Mabel Dunham, Librarian, Berlin Public Library.
James H. Mickler, Manager Globe Furniture Company.
Charles Hahn (recalled for Trades' & Labor Council.)

First Day, Friday October 14, 1910.

The Session opened in the City Hall at 8 p.m. 50 people being present.

The Secretary read the Royal Commission, and the Chairman outlined the scope and objects of the inquiry.

Witnesses were then called, sworn (or affirmed) and testified as follows:—

CHARLES HAHN, Mayor of Berlin, and President of the local Trades and Labor Council, said:—

Berlin is a growing place on account of its industrial projects; there are about 80 factories (list filed). There are 17 woodworking factories, 7 textile factories,

2 rubber factories, 2 tanneries, 4 button factories, 5 shoe factories, 4 foundries, and 32 other factories of different variety. There is not sufficient skilled labor to meet the demand in Berlin. Quite a number of new factories have been started here within the last 5 years, and the older ones have all extended. Berlin is as healthy as any place in Canada; has a good sewerage and water-works system. The street railway system contemplates extension, giving communication with Hespeler, Preston and Galt.

Until lately there was not adequate school accommodation to take care of the children. Taxation for all purposes is 19½ mills, of which 7 17–40 go towards education, the balance for general purposes. The people of Berlin are desirous of getting the best system of education for their children, and would like to see further opportunity for industrial and technical education, which is favored. The Trades' and Labor Council has discussed the matter, and that body is quite favorable to it.

J. A. SCELLEN, President of the Board of Trade, and also a barrister, said:—

The Board of Trade meets once a month; nearly all the manufacturers belong to it. The Board has discussed technical education and industrial training in the past, but not to any great extent.

The Chairman suggested that the Board at some meeting consider, discuss and if possible decide, as to how the needs of Berlin might be met in regard to industrial training and techincal education, from their point of view, and send in a communication before January.

Mr. Scellen said they would be pleased to do so. Most of the local industries are of home growth. They were started in a modest way and have grown to their present proportions with the growth of the city. They are not bonused industries, experience showing that the most successful industries are those that receive no bonus. All the manufacturers are parts of the Canadian Manufacturers' Association, and there is a local Furniture Association. Some local manufacturers are carrying on a sort of technical training or education in their own factories.

JOHN C. BREITHAUPT, in the tanning business and a manufacturer of sole leather, said:—I have about 125 men in 2 tanneries at Berlin and Penetanguishene; also 4 in one at Hastings.

Light leather requires much more labor in proportion than sole leather. A large proportion of our product goes to England. We are frequently short of skilled hands in our business; we use apprentices, that is, break in young men for certain operations in tanning, as most of the men are broken in for the various lines of work. More skill is required to operate in our line than it did 15 years ago; greater skill to operate the machines than to work by hand, and frequently skilled labor is required to finish the skin after the machine has operated on it. The skilled mechanic who works the machine must also have a thorough knowledge as to what operation is best for the skin that he is operating on. There is something in that process that facilitates production. The workman can do very much more work, and do it in less than half the time it would take by hand.

Sole leather requires about the same number of men as five years ago, but in light leather the amount of labor would not be much more than half what it was fifteen years ago.

Night schools would be helpful. There is no technical school of any kind in Canada for the tanning business, and really none in the United States. The American Tanners' Association decided last year to establish a technical school for tanners and chemists, and the Pratt Institute in Brooklyn, N.Y. is working it up, forming a department for tanning, and spending $100,000 for that particular branch in the first equipment. The difficulty in having a school in Canada would be the large expense that would be entailed for the comparatively small number that wish to take up that course, and it would be a question whether Canada could support it.

There is no special night school subject that would help tanners in any particular part of the work, unless they took the study of tanning as a process. A great many extracts are now used in tanning as compared with fifteen years ago. Then hemlock bark was used almost exclusively; to-day hemlock forms only about one-half of the material used, while other extracts, such as chestnut wood and spruce extracts, are largely used. Hence tanning now requires continually more scientific research, and therefore it would be well to have some school of training in order to teach young men the fundamental ideas of chemistry, which are essential. There is no special need for an institution of that kind in Berlin. A general education and general intelligence would considerably help the men engaged in tanning. There are two tanning schools in England—one in London and one in Leeds; in Germany the only one is at Freiberg.

GEORGE LANG, examined, said:—I have a tanning business and employ between 120 and 140 men. I acquired the tanning business from my father, and worked all the way through.

There is no special training in a night class that would help young men in the tannery. Something might be done to teach the higher branches of knowledge required in tanning, and there is no reason why Canada should not be one of the great countries for manufacturing and exporting leather. Chemists have to be depended on to estimate the value of different kinds of bark. A research station should study this question, and should be able to discover information of real benefit and value to the industry—something that would enable tanners to make better leather for less money, and it might improve the industry.

I am interested in the Pratt Institute at Brooklyn, and know Dr. Parker personally. Mr. Marlett of Oakville attended the tanning course there.

A lot of young men and women spend their evenings doing nothing, but not many adults would take advantage of night schools. I would like to see something here in the way of industrial training, and think it would make better workmen. I think there is a real educational value in manual training, woodworking, etc.

SAMUEL J. WILLIAMS, examined, said:—I am engaged in the manufacture of shirts, collars and cuffs; export product, and employ about 280 women

and about 110 men in Berlin. In the Hanover branch there are about 60 women and 4 men. It is not easy to get enough women to carry on the work; hence the firm was obliged to open a branch in Hanover last year. It is not easy to get enough men to carry on work here, and as a rule they have to be taught when they come, as they are very crude. Boys are taken into the cutting rooms and grow up to be cutters; the entire present staff of cutters came that way.

Night classes in Drawing and designing would not help young fellows in this business very much; and I do not know of anything that would directly help the women. The employees here have recreation rooms, and for the past 5 years the firm has maintained a lunch room, but business grew so fast that that room is used for another purpose, and a building is now being fitted up next to the factory as a dining room and library for the benefit of the employees. Business experience has shown it to be very profitable to have conditions for women to enjoy comfort and rest. A Domestic Science class was established in the factory, with a teacher from Macdonald Institute, Guelph, but it was not a success. About 24 started in the class, but it was held in the evening, and the girls living considerable distances from the factory did not want to come out evenings alone and go home at 9 or 10 o.clock, and as a great many had been in the factory 8 or 9 hours during the day, they preferred to stay at home and rest. If any techincal building or institution were provided, they could make progress in the evening class and become excellent housekeepers, and would take advantage of instruction, and it would be a good thing. An 8-hour day would be more conducive to good attendance at technical classes than a 10-hour day.

There was also a class in sewing, as many of the women, although knowing how to make cuffs, etc., did not know how to make their own clothes.

A few years ago the firm opened a savings account for each and every one of the employees, which they are still keeping up. An employee of a chartered bank comes to the factory every pay-day and takes the deposits; the firm has nothing to do with it.

ROBERT S. PORTEOUS, a cabinet-maker employed in a furniture factory, said he was employed on making furniture of a high grade, and had been there nearly 4 years. He learned the trade by serving three years' apprenticeship. He had no outside help during apprenticeship. After becoming a journeyman, he read books and special journals on cabinet making, and discussed things with men who knew more about it. Conditions have changed, and machines are now doing a large amount of the work formerly done by hand. Witness could help young fellows by spending an hour a week with them, and he thought all who could get a chance like that would improve, and that journeymen would like a chance for instruction upon their work. He did not think correspondence schools taught anything on that line, though he knew some who were taking instruction along other lines.

Witness had never examined very deeply the facilities for Manual Training at Berlin; his own boy had taken it for some time, and while he did not know that it had done him any particular good, he did not think it had done him any harm It was a good thing to make a boy careful in his actions. Boys of that age are

really fond of making things with their hands; kindergarten boys like it. It is a good thing to find out if the boy has any mechanical bent. His boy was past 17, and engaged in a bank.

Witness thought it would be good for a boy who had taken up a trade if he could attend night schools once or twice a week for instruction along lines that would be of use to him, and if he could get real help it would make him worth more in his shop. In his own work men had to be trained right from the beginning. The factory employed 14 or 15 men and 2 boys.

Apprentices were supposed to serve three years, but experience had shown that very few apprentices stayed two years. They work along for 6 or 8 or 12 months, and then want more money, and cannot get it, so go away, with the result that they knock around from one factory to another for several years and never become mechanics.

The cabinet-maker to-day does not learn so many branches of the business as he did 20 or 25 years ago. For instance a good cabinet-maker in those days was able to operate all the machines in a factory, while the cabinet-maker of to-day very seldom goes near a machine. They are specializing more to-day. An apprentice to-day will not learn the different branches of the business; one who had been with them probably a year and a half had never, to witness' knowledge, touched a machine. A system of technical education would lend itself readily, he thought, to that specialization. Manual Training would be valuable to an apprentice in machine work, though of no use to a finisher. Designing would be the only special course of study for a cabinet-maker; it would be of value to him and to the machine hands, but not to the finisher. A technical school in Berlin with a department of designing would be a good thing. He did not know that mechanical training would be of very much value to a furniture man. He found the boys who go into the business have a fairly good elementary education, with some exceptions.

FRED DAVEY, clerk in a Watch Factory, said he had half a year in the High School before going to work, served three years as an apprentice, and had worked 10 years as a journeyman. He had studied from books, because there was no school in those days for his trade. The Horological Institute of Toronto was greatly prized, and students worked along practical lines. The students were very good on escapements, but when it came to ordinary work their education was at fault. They had some practical shop practice, and in order to receive a diploma, the student had to make a watch himself. The course was 2 years.

The assistance of a night school along with shop work at the same time would greatly help and benefit a young fellow. Mechanical drawing and designing, Euclid, geometry and arithmetic, would help in learning watchmaking or machine shop or engine work; they would develop originality of thought and the student's power to think for himself.

The system of education to-day is so crowded that the teacher has no chance to do himself justice. Witness would teach by object lessons, with the result that the student would know, not merely because the teacher said so, but because it was so; he would see for himself.

The larger the factory, the less chance a man has to become a skilled workman, i.e. one who could handle any branch of the work from start to finish, all the machines used in his work. Money-making is the wrong standard of success; the well-rounded man should be taken as the standard. The only way in which the prevailing system in factories could be changed was for them to turn around and instead of specialization, teach the boy everything from one branch through to another, as in the case where witness is employed, where the boys are taught every department. The school will not be able to teach a boy a trade unless he gets the practical experience along with the theory.

If a person in the town wants to work up any study and cannot go through the High School, he has no chance. Witness would like most decidedly to see night schools. Last year he took up a course of special study, and the only place he could go to get any information was to the Public Library. Fortunately Berlin had an expert librarian, and when witness did not know where to look for the information he wanted, thanks to her knowledge of book-lore she was able to locate it in books that he could not afford to buy for himself. Thus it was through the library that he was able to achieve what would not otherwise have been possible.

DAVID GROSS, Jr., examined said he was Assistant Superintendent of the Button Factory, employing about 80 people, many of whom learn the business through apprenticeship. He did not know of any evening class that would be of special benefit to a young fellow learning the business, except for general education. There are about 35 men and 25 women employed, and witness thought they would attend evening classes for the improvement of general education. Arithmetic and ordinary reading and writing should be taught; these subjects would be useful to them. Some have very little education at all, and some cannot read.

AUGUST WERNER, of Elmira, druggist, and Secretary of the Trustees' Department of the Provincial Teachers' Association of Ontario, said that he had a knowledge of discussions that come up there. Manual Training has been adopted as an aid to other educational factors, but not as a special work or industry. Technical education, to be successful, would have to be based upon a good general education. At the last meeting of the Association a discussion came up in respect to the Correspondence School of Scranton, Pa., and it was very much deplored that money from Ontario and different parts of Canada should be sent out to the States to give Canadian boys what should be provided by their own Government.

The Technical Committee appointed by the Association is not ready yet to report on the matter. Witness understood industrial schools to be those which have a course giving special preparation for certain lines to students who were taught to do certain work on an article that is to be put on the market.

Witness believed that the visit of the Commission to a large number of farming communities, and taking up agriculture so thoroughly, would be the means of increasing the interest on the part of certain rural districts in the value of edu-

cation generally, giving them a sympathetic leaning towards education which would fit them better for their work.

The counties of Oxford, Victoria and Wellington have local Trustees' Associations which are doing good work along that line, and are supplementing the general work of the Association at Toronto.

The Session adjourned at 10 o'clock p.m. till 10 a.m. to-morrow.

Second Day, Saturday, October 15th, 1910.

Session resumed at 10 a.m. in the City Hall.

FRANK HODGINS, examined, said he was Superintendent at the Williams, Greene & Home Company. The foreman of each Department interviews and engages all workers. There has been great difficulty at times in getting enough women workers, especially during the busy factory season, coming on about this time. The law says girls must be 14 before they come to work; some come at that age, but the majority are from 15 to 18. The firm once made it a rule to take no girl under 16, and for some time kept to that, but it was abandoned because it was found to work against them, as girls under 16 secured employment in other places, and by the time they were 16 had become used to the rules of those other institutions, and naturally would not desire to leave them. He would not say that the employers in those other factories were unscrupulous; they required the girls, and the law allowed it, and these girls were sent by their parents to look for work. Legislation supporting the firm in their desire not to employ girls at less than 16 would have assisted in establishing the rule. The engagement of young girls arises from scarcity of labor. Of course at times a girl, perhaps over the age of 20, comes in and feels that she must start off at higher wages than the firm can offer at the time, but this is exceptional. It would be wise legislation to prohibit girls aged 14 from entering factories and starting at machines and working steadily at that age; 16 is plenty young enough. Children coming in at 14 require a great deal of supervision; they do not really know what work is. When girls are taken in at that age, this firm puts them on simpler work like basting and repairs, which helps to some extent to qualify them for work on a machine, and they learn the necessity for sorting patterns and become familiar with the factory.

Classes in connection with the sewing department might make girls familiar with the power machine; it takes a little time to learn to control it. The firm supplies teachers, and the girls start sewing on rags until they demonstrate that they can control the machine, but the teacher has to stay with them for some time. If a girl had learned to control a power machine before securing employment, she could be earning better wages within a short time, because practically all the sewing is part piece work. The firm has been in the habit of guaranteeing $3.50 for a 50-hour week for a certain time, simply to ensure people coming from out of town, so that the expense of living would be covered when learning.

Witness thought the evening classes in Domestic Science at the Collegiate Institute would be of advantage to the girls, and the firm would be glad to advertise them in the factory. The girls are entitled to one week's vacation each

year, and for the last two years the endeavor has been to close the whole factory at one time; this year it was closed for 10 days.

Instructors are kept in practically every part of the work. Employees coming into the starch room have to be taught starching; those in the ironing room have to be taught different processes so as to become familiar with the machinery there, and its requirements. In using the ironing machines they have to get a knowledge of the heat on the different rolls, and to know good work when they see it. In any part they need teaching, which is usually done by the 4 women instructors, or if a girl is coming in on junior work, or somebody is being put from that machine to another, the girl running on that machine will stay with her until she demonstrates that she can handle it.

Witness did not know of any classes of instruction that would help the women in learning their business. In the hand-ironing department, boys could not be taught, for they are not strong enough; that work requires full-grown men. In the cutting they usually take at least 3 years before they are full-fledged, and witness did not see how they could be taught anything outside that would help them.

There was a possibility in the laundry department for men to be expert laundrymen, for a certain knowledge of chemistry would be very useful, especially in the washing and starching department, to two or three in the laundry, possibly to only one. The superintendent of the laundry has to have it. If others had it, it would help to fit them to progress in their work, but they do not absolutely need it as long as he is guiding them. The head of the laundry department, while not a trained chemist, had the advantage of learning under a man who had some knowledge of chemistry, and thus obtained knowledge that is very useful to him. In the custom laundry business there would be a great field for men of that class. There would also be quite a field for research work in improved methods and combinations for cleaning. In the last few years a great many improvements have been made. One was a bleaching liquor made by passing electricity through salt and water, chloride of lime being apt to injure fabrics.

ROBERT Y. STUART, foreman of the machine shop of the Waterloo Manufacturing Company, chiefly turning out threshing machines and separators, stated that this Company employs in the engine building department about 25 skilled mechanics, who have served or are serving their time. The Company has one apprentice now, having lost one by sickness. 20 or 30 years ago there would be 4 apprentices to the 25 men, and witness had seen as many as 8 to that number only a few years ago.

The witness said that the small number of apprentices in this shop is exceptional, not general. He knew it was not right to have only one apprentice to 25 skilled men; they ought to have more, and could have got them, as they had had several applications, but it is simply carelessness on the part of the man who hires the men, letting the thing go on from day to-day—hence witness got no apprentices. While the official referred to had no objection to having them, the superintendent has, and in fact the witness confessed to a little objection himself to apprentice boys as a general thing. He had had his experience with them,

and did not care for them, though he did not press it very hard; undoubtedly, he added, he would rather have trained workmen to do the work. There is a good deal in the fact that immigration for the last 7 or 8 years has supplied mature mechanics, and there is not the same necessity for training apprentices to fill positions as there had been. They had never been scarce of labor in that shop; had always got a man without trouble when wanted. He thought the training of apprentices would arise from the absolute necessity of filling positions so as to get out orders that could not be got out unless they produced mechanics. He did not think the lack of interest in young men arose from an impression that they were not being paid enough for the contribution of labor in the production of commodities; it was simply carelessness—no ambition to make themselves any better. They would rather play billiards, or go to a dance hall, play baseball, or something of that kind, than devote some of the time they now spent in amusement to making themselves more efficient in their work.

Evening classes where young fellows could learn mechanical drawing and such like would be good, and he thought they would go. It would undoubtedly be a good plan to insist on making boys from 14 to 16 attend some class; that would not be too drastic, and they would see it themselves after they got into it.

The majority of the apprentice boys in the shop have simply a common school education, and sometimes not that. Amongst the Germans especially, the young people are taken away from school at 14 and set to work. Whenever they get through their confirmation classes, they are put to a trade; they probably go into some factory for a while, such as the button factory, or some other of the lighter trades, and work there until they are old enough to start to learn their trade. It would do these young fellows good to get more education if their parents would only allow it. Of course a lot of people are poor; if they got cheap education they might take it, but they cannot afford to give them the higher branches; they cannot afford to pay for their children's clothes and keep them after they are 14 without earning something. If they were earning something in the day time, they might take advantage of night schools. Witness did not take any course of any kind himself, but just kept up with the times by reading technical and mechanical magazines. He did not think any men in the shop took correspondence courses; they had had boys that did so, but they got through their time and left.

Mechanics in this shop do not all work from blueprints. The gas engine seen by the Commission was built from blue-prints, but it had to be worked out for a good many of the men, some of whom cannot read blue-prints. It would be a great deal better for the work if all could do so. As to wanting a chance to learn that now, his experience with the young people of the shop was that they do not seem to have any inclination to study their work or take an interest; they have no ambition. Two years ago a club of 14 was gotten up to take the "American Machinist", but when it came by mail it was thrown into the corner and never opened by three-quarters of them, and witness did not think there was one subscriber in the shop to-day. A good many of the men do not seem to care as long as they can get the day in; of course there are exceptions—good boys that try to shove themselves along. In that respect it is not any different from what it

was 30 years ago; it had been so right through in their business as far as witness' experience went; in fact he thought he was a little that way himself when he was young, but he had to make up for it. He got his own knowledge of blue-prints by studying it out.

FRED WILLIAM SHEPPARD, examined, said he had been for 6 years Inspector of Public Schools, taking in Wilmott, Wellesley, and North Dumfries, 3 townships out of 5 in Waterloo County, not including Berlin or Waterloo towns. The only industrial centre included is Galt, and New Hamburg might be considered. He does not inspect the Collegiate Institute at Galt. The majority are rural schools. Most of the teachers have had Normal training.

School Garden work is being carried on by 4 teachers, 2 of whom have not the required qualification and hold no certificate, except interest in the work; the other 2 are qualified by having attended a session at Guelph from April to the end of June. Another one was qualified, but the trustees have not secured a suitable plot. Mr. Hart, of Galt, also had a group of home gardens, and witness fancied he saw among some of these boys a greater interest taken in their regular school work. One boy especially who used to be called a regular nuisance in school, is now taking far greater interest in it, arising chiefly, witness believed, through having made an excellent collection of injurious insects, and studied the work of such insects, and also diseases among weeds and vegetables. Interest in that branch of education is growing among the farmers, though at first there was considerable opposition, or rather ridicule, as they thought there was little chance of any good being done. Now there is a change; they begin to see there is educational value.

Witness could not be positive as to how well continuation classes would be attended by rural children, where special attention would be given to nature study and science relating to agriculture, such as physics, chemistry and botany. In some parts they would be attended better than in others. In the south near Ayr a great many parents, some of whom took a short course at Guelph, are now taking an interest in those matters, and would probably be glad of an opportunity of sending their children. That would be as good means as any for children who have to live on farms in the country, and better education than they get now. A continuation school has been established which takes in the village of Ayr and three sections from witness' inspectorate, but they did not succeed in getting any from the adjacent county (Oxford) which would probably have helped to make it more efficient by having a larger area to draw from.

At one of the meetings for organizing, Mr. Goldie, the miller from Guelph, made the remark to some of the younger men, "Why, your fathers would have jumped at such a chance."

Witness believed the present course of study was made too uniform; that sufficient allowance was not made for the probable future lives of the different children being trained; that those in the country are being called upon to follow exactly the same course as those whose life would be in some industrial calling in the city. There should be a difference in training between boys of cities or towns and boys of the country. There seems to be an impression among the teachers,

and even among the trustees, that teachers are called upon to have their children reach High School entrance standing, hence they aim at that, which witness considered a mistake, for it impels the course of study in a direction that is not in the best interests of those attending school. There should be greater elasticity given by the Department to different communities; there should be at least some options and more freedom, instead of requiring all subjects to be taken by all. It would be beneficial to have a little more freedom for the individual pupil also; it would probably be better for him if he followed the natural bent of his mind. Pupils should be trained not only for ability to make things, but to live well in the locality.

Witness said this would be a good topic for discussion at the Inspectors' and Trustees' Departments, for there was a strong feeling against making the entrance examination the goal of the teacher's work, and he would bring it up there.

A great many boys and girls leave schools in the country at 14 or 15. When witness was a boy, young men between 16 and 20 years of age went to school during part of the winter in the country; now there is very little difference between summer and winter attendance, and any difference is that those just verging on 14 drop out during the summer and are more steady in their attendance in winter. This change has largely arisen through the decrease in the number of male teachers, as boys of 16 and 17 do not care to go to school under a young lady who is perhaps only a year or two older. Schools are also much smaller, many now having only 20 or 30 pupils that used to have 60 or 70, hence school activities outside of school work are so much diminished, even the playing. In reality there is no school play, games of football or anything of that kind. The witness had always looked upon games as a very important part in education, and also as leading bigger boys to come back to school; but now boys leave as soon as they can in the country. Continuation or Consolidated Schools would tend to bring together for special training a good many of those who would not otherwise attend a simple country school where there might be only one or two others. The present indifference, and the want of attractions to satisfy the social nature of the children, show a very grave state of things.

Evening classes in country schools, or even afternoon classes once a week, with a good school garden, would be worth while; but witness could not say as to its probabilities of success. People had taken a very great interest in social gatherings in the country when not occurring as often as once a week, and it was possible they might find the time for such classes. The question would be whether it would interrupt their work too much. He believed that "Saturday afternoon off work" was as necessary on the farm as in industrial centres.

Witness did not know of one teacher who teaches sewing. He had been at two schools where the teachers, who had come from England, did teach sewing as part of what was called "busy work"—keeping the little ones employed, perhaps from the junior second down; after that the work was not carried on. Sewing is a fine process for training observation and thinking and the act of manipulation; but teachers usually feel that they would have very little opportunity of taking it up, as all their time is so fully occupied with the present curriculum.

There is no Manual Training in the schools themselves; there are some classes in the Public School in Galt City. He had observed the Manual Training in

the country, not so much as inspector as individual. It had not been going long enough in Galt to give him a clear idea, but it had been very beneficial to his own boy in Berlin; he showed traces of character that could not be ascribed to any other cause. It had tended to make him precise and exact in any work that he did. In working about his garden he insisted upon having a blue-print of it, and it had to be done by scale; his garden was laid out by scale; he had a map of it. Witness did not know of any other reason for the boy doing it.

Witness held very strong views about teachers doing too much for the pupils, for he had kept pets, and knew that there was a loss through their being fondled too much. He felt that being all the time at the book was bad, and yet, remembering the benefit he had derived from each subject, he would not like to be called on to say, "Drop this or that subject." In a number of his schools, in a whole class there would not be one pupil who on entering could speak a word of English, so that the first step was really to teach the language. His plan was to call up one that would understand, and ask his name, after having asked one younger that could not give his name. The younger one, who did not know when asked, could then give the name of the boy who had just been questioned, though not understanding the question at all. After pupils have a knowledge of some words, they generally proceed to the phonetic method for word recognition; but combined with that all the way through, the reading of the entire sentence is taken as a basis, and the child is called upon not to read it but simply to interpret it, that is, to go to the board, hop to the board, run to the board, or do whatever is written on the board—trying to employ the principle of activity. Witness thought that reading should be placed first of all as giving power at a later time to acquire a knowledge of those subjects known as informing subjects. The important subjects to be retained would be those that trained the activity.

The use of German in the explanation of lessons is discouraged, because it is felt that pupils will acquire a knowledge of English much more quickly if the teacher depends entirely upon English. Witness had had experience of that. For himself he would not use a German word in teaching if he could possibly avoid it, for he found pupils picked up the English language better when they had to speak English. Witness was not unique in that. He knew a young man from Berlin who went to Italy to take lessons in singing, and the professors there asked his wife to come to Canada and live here in order that her husband would not have anyone speaking English to him. Witness knew that in some Provinces there are first and second books in the language of the child, and he had had several enquiries made by Superintendents of Education as to the method adopted with regard to German children, but German is not talked at this stage except as a means of learning German. In some sections the parents wish their children to learn German reading, writing and composition, and they have a lesson or two a week, but it is not part of the regular school work. The Department is aware of the fact that such work is being done, but it is not on the course.

WALTER H. WILLIAMS, examined, said he was acting Principal of the Collegiate Institute, and had been on the staff for 5 years, teaching moderns—French and German. He had no practical knowledge of Manual Training or

science except as casually observed. He took a course at Queen's University, specializing in moderns and English; then took the School of Pedagogy examination extra-mural; and a 2 years' post-graduate course at Queen's. He gained considerable insight into method, reading up the theory and observing it at the same time, also getting practical work at the College and Boys' Academy (where he was tutor), the same as he would have had at Hamilton in the School of Pedagogy. There were 6 students taking the pedagogical course, and they would discuss the theory of education, and as they had been teachers for some time, and witness was getting the practice, he derived a great deal of benefit from the technical side of education and the technical side of teaching.

In beginning to teach a person makes a great many mistakes by taking too much for granted; the teacher is apt to over-estimate the understanding of a pupil about things he does not understand. In teaching you put to the proof the work you learn by theory. In teaching composition, about half the work deals with things the pupils have been doing; the other half with what they have been reading. Subjects are assigned on such topics as to how pupils spent the holidays, or how they passed a certain day; teachers also ask them to read certain books and give a synopsis, or get them to reproduce stories orally.

Witness finds a great need of making composition interesting to pupils. A topic such as a football or hockey match, or how he spent a day in the woods, will interest a boy, but if asked to make a record of his day's work in school he may, if a little mischievous, bring in something about the school or the teachers; further than that the topic itself may not be interesting to him. There is a tendency on the part of teachers of composition to read to pupils a story. While they cannot read and hear too much good literature, there is a tendency to neglect teaching them to think for themselves, and getting them merely to reproduce what others have done and thought, instead of what they have done themselves. It certainly would be interesting to pupils to describe something they had been working at in Domestic Science or Manual Training. Miss Fisher did a little of that; for instance, after teaching the process of bread-making she asked the teachers to assign that as a topic of composition. It thus served that purpose as well as showing what they had remembered of the subject.

Arrangements have been made by which three Public Schools and one Separate School, junior fourth and senior fourth classes, may come to the Collegiate and take Domestic Science. They are first taught to sew and cook, with some elementary principles of chemistry; and after they have entered the High School, that work is continued for 2 years. One whole morning a week is given to each class, and with 5 different classes, each school thus gets 3 hours per week. A class in the Public School has been assigned to the afternoon for mechanical woodwork and iron work.

That work is continued in the Collegiate, which, having forges, teaches tempering of steel, welding of iron, and all kinds of iron work. At intervals banquets are held, of which the Commission had had a sample the previous day. After attending for 2 years in the Public School and 2 in the High School, a girl is in a position to enter a home and cook splendid meals, while the work a boy gets in Manual Training does him a world of good. In a sense this work is just beginning.

The teachers are hampered by the curriculum, which does not allow the time to Manual Training and Domestic Science which should be given to them. There are four classes each of junior and senior from the Public Schools, that is 8 altogether, yet there are only 5 afternoons, which means that 3 of those classes can only meet once in two weeks, which they do from 2 to 4 o'clock. The pupil gets 2 hours' instruction, and his next lesson is 2 weeks hence; in that time he has possibly forgotten a good deal of what he has learned in the first lesson. Something will have to be done, and it is suggested that at least part of the work be done in the Public Schools, leaving the Collegiate to deal solely with technical education.

It is obligatory that those who take the foregoing courses should take one of the regular courses, of which there are three—commercial, matriculation, and teaching course. Three different parents have asked to have their son or daughter take chemistry, physics, French and German—that is, all the options, but this could not be done, because 3 hours a week are devoted to Manual Training. A satisfactory adjustment was made, however. In Collegiates where there is no Manual Training, they would have those 3 hours; therefore there is some difficulty here in giving the students what options they like.

A new course in science and technology, which would exempt the pupils from Latin, would work out all right provided there were time, and that teachers were not hampered with any Public School classes. It certainly would solve the difficulty if there were a techincal course and technical school which would be in a way entirely separate from the regular Collegiate course.

MABEL DUNHAM, examined, said she was a Librarian of the Berlin Library, which is maintained by a municipal grant of $3,000 and Government grant of $260 toward the building, the latter being provided by Mr. Carnegie.

A Book Committee indicates the books to be bought, after witness makes the recommendations, which are based on enquiries and general knowledge; and at the Library there is a book in which anyone may write suggestions. Any member of the Book Committee has a right to strike off any book recommended with which he disagrees.

The Library is becoming more popular; it is used to an increasing extent as a reading place; the reference department, especially, is used very much more than it has been. The library is catalogued, and there is an index to periodicals which is very useful in the reference room.

In case of technical classes being started, the Library would be available certain evenings, in fact, in the Board Room of the Berlin Public Library was born the idea of technical education through the medium of the public libraries of Ontario. During the year 1907 the question of the relation of the Berlin Public Library to the workingmen of Berlin's factories came up frequently for discussion at the monthly Board meetings, and on February 13th, 1908, it was decided that some effort should be made to encourage the employees of the factories to make use of the advantages afforded by the Library.

By the time the March meeting was called, a definite plan had been evolved. The scheme was to tender a reception to 150 factory owners and foremen. The following invitation was issued:—

SESSIONAL PAPER No. 191d

RECEPTION TO INDUSTRIAL MANAGERS AND FOREMEN.

The Board of Management of the Berlin Public Library earnestly requests your presence at a gathering, the object of which is to show the benefit you and those under your direction may obtain from frequenting the Library. The Reception opens with a short meeting in the Assembly Hall, after which will follow a display and examination of the books suited to particular trades.
Berlin Public Library, March thirteenth, at eight o'clock.

On the day of the reception the Library was closed to the public in order to give those in charge of the function an opportunity to complete the necessary preparations.

Between 75 and 100 men responded to the invitation. Preliminary addresses were given by two members of the Board, both of whom emphasized the willingness of the Board to supply with both books and magazines, to a greater extent than previously, the needs of the workingman. The display of technical books was then inspected. On the large tables in the reading-room were classified and arranged all the books dealing with the useful and fine arts. These the guests of the evening were invited to examine, and to call attention to any deficiencies noted in the collection. Many useful suggestions were made; for example it was found that there was no information on the manufacture of leather.

At a Library meeting held at Niagara Falls shortly after, one of the members of the Berlin Public Library Board, Rev. W. A. Bradley, B.A., at that time Vice-President of the Ontario Library Association, was invited to give an address. He chose for his subject "The Function of the Public Library," and showed that it was not doing its whole duty to the community until it met the needs of all classes of people. In this connection he pointed out that the workingman had not been receiving from the Library his share of attention. The late Inspector of Public Libraries, Mr. T. W. H. Leavitt, was greatly impressed with Mr. Bradley's remarks. The result was that on Easter Monday, 1909, the cause of Technical education in connection with the Public Library was brought before the Ontario Library Association. Mr. Bradley, in the President's address, briefly outlined what had been done along this line in Berlin, and proposed a scheme whereby the Public Libraries in the larger centres of population should undertake for Canada the work that is now done by the correspondence schools of the United States. He quoted authentic figures to show that enormous sums of money are sent every year from Canada to the United States for education along technical lines. In the evening Inspector Leavitt's paper on "Technical Work in Public Libraries" was read. After some discussion, a committee was appointed to visit libraries in the United States, and report what was being done there in the way of technical education, and the Government agreed to meet the necessary expenses of the Commission. It was found that the plan adopted by the Berlin Public Library Board was in common use in the libraries across the border.

After the 1910 meeting of the Ontario Library Association, the cause of Technical Education in connection with the Berlin Public Library received a fresh impetus. New books on technical subjects were being added from time to time, but it was felt that something should be done to revive the old-time interest of the working men and women of the town in books pertaining to their particular trades. With this object in view, a deputation of three members was appointed to address the Employers' Association and the Trades and Labor Council, to present

to those societies the attitude of the Board towards technical education, and to solicit from them the sum of $100 for the purchase of technical books, explaining that in the event of such a donation the Education Department would loan the Berlin Public Library, for an indefinite period of time, a travelling library of technical books of equal value. This proposal was unfortunately not favorably received.

But the Berlin Public Library Board was not to be daunted. Within a short time printed lists of technical books already upon the shelves of the Library were prepared and sent to the various factories with the request that one be enclosed in the pay envelope of each employee. The accompanying lists will show a respectable library of books dealing with the manufacture of leather and leather goods.

The results of this experiment have been gratifying. It has helped to overcome the natural diffidence of a man of the factories when he enters a sanctuary of books. He knows what to ask for. Previously he asked in a general way for "Something on woodworking;" now he produces a slip of paper from the recesses of his pocket and states definitely the name of some particular book he knows will be available. Several factory owners have, in different ways, expressed their appreciation of this last endeavor of the Board to bring industrial Berlin into touch with the Public Library.

Some figures may be of interest:—

Number of technical books in library:

	Adult.	German.	Juvenile.	Reference.
Science	429	45	85	9
Useful Arts	248	20	19	43
Fine Arts	190	10	12	9

During 1909 the number of books on science and art circulated was 1519; for the number consulted on the library premises, no record was kept.

During 1910, up to October, the books on science and art circulated totalled 1107; no record was kept of those consulted on the premises, as it is difficult to keep such a record with any degree of accuracy while at the same time allowing patrons of the Library access to and freedom in handling books. For this reason no attempt has been made to record the total use of books at the Berlin Public Library, but it is safe to state that at least as many books on technical subjects are used in the Library as are recorded in the monthly circulated reports.

The Library subscribes regularly to the following magazines of a more or less technical nature:—

American Photography.
Building Age.
Canadian Electrical News.
Canadian Municipal Journal.
Canadian Poultry Review.
Canadian Teacher.
Country Life in America.
Craftsman.

Education.
Engineering.
Garden Magazine.
Good Housekeeping.
Harper's Bazaar.
Health Culture.
House Beautiful.
Modern Priscilla.
Popular Mechanics.
Popular Science Monthly.
Public Libraries.
Scientific American.
Scientific American Supplement.
Studio.
System.
Technical World.
World's Work.

Current numbers of these magazines are always to be found on the tables in the reading room, and back numbers may be consulted at any time. At the end of the year some are bound and placed on the shelves in the reference room, others are kept unbound in the Librarian's office and the rest are sold.

Miss Dunham produced copies of slips distributed through the local factories, being put in the pay envelopes. These contained selected lists of books for leather, fabric, rubber, wood and metal workers, bicycles, clocks, plumbing, mechanical engineering. It has been found that people are using these lists and coming to the Library with a definite purpose, as they know just exactly what book they want. Nothing has been done in the way of outlining a course of reading for particular industries, but it might be done.

JAMES M. MICKLER, examined, said he was Manager of the Globe Furniture Company, employing about 70 hands, and turning out high-class interior hardwood finish of all kinds,—fittings for court houses, banks, etc.; no iron work. The men are not always trained as journeymen, and unfortunately there are not many young fellows, for it seems difficult to get young men to take up this line of business. It is an interesting business, but in some way they do not seem to take kindly to it.

Witness did not really serve any apprenticeship, but went from one factory to another and gained knowledge that way. He did not take any class at any time. He did not think there were any night schools or classes in Waterloo. He had found it difficult to pick up the business as he did, and would have found it of advantage to attend a school for mechanical drawing.

CHARLES HAHN (recalled), examined, said he was identified with the Trades' and Labor Council at Berlin, with which about 17 or 18 organizations are affiliated. These include shoe workers, carpenters, wood-workers, painters,

tailors, cigar makers, bricklayers, tradesmen and brewers; there are no piano and organ workers and no machinists.

At present people going into the factories have to be taught by the manufacturers. A system of technical education which would enable children to get an idea of the different lines of work in the factories would enable them to do the work better when they got there; they would not have to work for weeks before getting any pay.

Some trades would and some would not derive benefit from Technical Education. There is no course of instruction at night or at any time now that would help the carpenter or bricklayer; there is no Mechanics' Institute; no classes connected with the Collegiate Institute; no night classes whatever except a business college that runs a night school for purely commercial purposes.

All Unions discuss to a certain extent among themselves the features of their trade, but not a great deal. The stationary engineers fix an hour and have one of their members give a talk; that is the principal part of their meetings. It would be a great thing for carpenters to know how to build stair-ways, hang doors and roofs, etc; also for bricklayers how to build an arch or a panel properly. That knowledge would be of special benefit not only to apprentices but to mechanics. Magazines and papers in the interests of those organizations go into technical matters sometimes; but at present they are all those mechanics can get instruction from.

There are about 3,000 male and 1,200 female workers in the factories in town. Those 3,000 men would get some benefit from Technical Education. Mechanical drawing and mathematics would be of great advantage. Witness did not know whether Technical Education could do much for boot and shoe workers under the present organization of factories, shoes being manufactured so much by machinery, and the business so thoroughly specialized; but such a course would probably be of benefit to a foreman who had to superintend the work.

There was not much amusement in Berlin outside of moving picture shows; no amusements at all to speak of; the men play hockey, baseball, football and all that kind of thing on lines of athletics, and there are theatres—only ordinary cheap ones, vaudeville performances and picture shows mostly. There is an opera house that once in a while has an opera or a good show on, but the opera house is one not capable of accommodating good shows very well. Healthy recreation would be a great help to working people in their work; any effort along that line would be helpful.

While wages in Berlin are fair, they might be better, because there is so much demand for labor; generally the wages are fairly good compared with other places, that is, men in Berlin make about as good wages as they do anywhere else. No local manufacturers have voluntarily increased wages or shortened hours; the men have to demand it, work for it, request it, and don't always get what they ask for. Witness thought it would not be so hard to get it at the present time, because things were so good all round, and perhaps it would be a good deal easier to get more wages now than it would sometimes. There is a scarcity of labor now, the influx of labor not having kept pace with the Berlin industries, which have grown faster than the town, though the town itself has been growing very fast.

All the factories are increasing their plants, and some new ones are starting, so that labor has to come in from somewhere. That is a healthy condition, because the growth is natural, not a boom. Labor men in Berlin do not suffer from industries employing men in the summer who are unemployed during the winter, though ordinary laborers on corporation work and builders' laborers usually have an idle time in winter.

Witness conducts an employment bureau under the auspices of the Ontario Government, registering people who are out of employment, also those who want labor, and supplying the labor; classifying skilled and unskilled labor and trades as well. A lot of people have been benefited in that way, in that they do not have to run around town looking for work, and people who wanted laborers do not have to look for men; they simply send their names in and within a short time have people furnished to them. A great deal of labor is supplied that way, and the bureau has been freely made use of. During the current month only 3 applications from workmen had been registered, and those were usually men who came in from somewhere else and did not know the town; there had been no local applications in the month at all. On the other hand there was quite a demand for labor. The bureau was a fair barometer of the labor situation. There had not been a local application during the month from a man working at a trade as journeyman; they were mostly ordinary laborers that had made application. The Employers' Association of Berlin have an employment agency, but the conditions there are about the same; while they get a lot of applications for help there are very few people who apply for work. The bureau has proven to be a good thing, for when men want work, witness finds it for them somewhere or other.

The Labor Council in Berlin thinks Manual Training or Domestic Science would be all right; there is no objection to it at all. As the country grows more carpenters and other craftsmen will be needed.

Witness said the Trades and Labor Council could appoint a committee to carefully separate the different trades and find out just what class of instruction would benefit each trade.

Session closed at 12.15 noon.

Information from MR. HOUSTON as to Manual Training in Berlin Collegiate and Technical Institute.

Equipment: The equipment is as follows:—20 wood working benches with tools, general equipment of tools for wood working, 5 wood Lathes, 1 Band Saw, 2 iron lathes, 3 forges, 6 vises, 1 drill, together with necessary tools for work.

Classes: The classes taking the work are as follows:—Public and Separate Schools, Jr. IV and Sr. IV Grades. High School Forms, 1, 1A, 1C, 11, 11A, and 11C. Each class receives one lesson per week. Public and Separate School Classes (2 hours) take the more elementary wood-working and working drawings of models made. High School pupils (2¼ hours) take the more advanced wood working, wood turning and pattern making; forge, lathe and bench work in iron; also advanced drawing. Talks are given to the classes on tools, their uses, etc., woods, their growth, nature and use, construction, etc.

Drawing: The drawing is introduced by a graduated series of exercises which instructs the pupils in the method of making and the use to be made of plans, elevations, sections, etc. This course has interspersed a series of working drawings of the models or projects worked out at the bench. In addition to the above work in drawing there is a definite course in Mechanical Drawing, covering three years, consisting of Practical Geometry, Projections, Conic Sections, Intersections and Developments, Machine Drawing.

Shop Practice: *Wood Working*:—Bench work, joinery, pattern making to some extent, wood turning. *Metal Working*:—Forging; drawing, bending, twisting, shouldering, upsetting, punching, welding, shaping, etc. *Vise Work*:—Chipping, cutting, filing, truing, fitting, etc. *Lathe Work*:—Instructions *re* construction and working of the lathe, simple lathe work as required in construction of various models.

Information from MISS FERGUSON as to Household Science in Berlin Collegiate and Technical Institute.

Equipment:—

Hollow square class table and kitchen cupboard	$237.00
Class table equipment	113.69
Kitchen cupboard equipment	26.68
Supply table	10.00
Teacher's table	19.00
Chairs	38.00
Individual stoves and attachments	38.40
Gas range	23.00
Coal range	
Sink and boiler with gas heater	95.00
Store cupboard	50.00
Equipment of store cupboard	51.74
Library	14.25
Linen	23.39
Lockers	120.00
Curtains, etc.	40.00
Dining room set and lounge	
Cutlery for banquet purposes	60.00
Dishes for banquet purposes	
Towel racks	3.00

Classes:—

The classes taking up the work are:—

(*a*) Public and Separate Schools Jr. IV and Sr. IV grades,

(*b*) Collegiate—Forms I, IA, IC, II, IIA, and IIC.

Each Collegiate Class receives one lesson weekly of four period length. All Collegiate lessons are in the morning.

The Jr. IV and Sr. IV grades alternate weekly, each class having a 2 hour lesson every fortnight.

The Jr. IV grades only are taught elementary sewing for one year.

The Sr. IV grades only are taught elementary cooking for one year.

Practical work in cookery only is possible, as no laundry equipment has as yet been installed.

Individual equipment will not accommodate more than 24 in one class.

Class work:—

Sewing.—Five Jr. IV classes are enrolled for this work, four from the Public School and one from the Separate School. All sewing material is supplied by the Household Science Department, with the exception of thimbles and sewing boxes.

A fee of ten cents per pupil per term of three months covers the necessary outlay.

A practice of the different stitch forms is taken on samplers, which are mounted eventually in the students' note books, in exemplification of the notes corresponding to the same.

Once the stitch forms are mastered, some articles are made involving a further practice of a number of the forms. The children are allowed to take home their work at the end of the course. All equipment is distributed at the beginning of the class and then collected before the students are dismissed. Since the period of 2 hours is rather long for this work, two intermissions of five minutes each are allowed during the afternoon.

Cooking.—There are nine classes in cookery, five from the Collegiate, three from the Public Schools and one from the Separate School. The afternoon cookery classes are 2 hours long, and the morning (Collegiate Classes) $2\frac{1}{4}$.

The least possible outlay is made for individual cooking, and the cost per pupil is less than 2 cents per week. The Board gives a grant of $9 per month, specially for this department, which covers all cost of groceries, meat, laundry and milk. The teacher supplies the Board with a statement of all expenditure and receipts for the same.

In the Sr. IV Grades elementary Cooking is taken up, and a more advanced course with the Collegiate classes.

Noon Lunch Hours—Soup Kitchen.—Since the Berlin School draws a rather large percentage of its members from the adjacent towns and villages, the noon lunch hour has become a consideration of no small interest. The result has been that for the comfort and convenience of those students who have to remain at noon, soup, tea, coffee and cocoa are provided, at the nominal fees of 5c. 2c. 3c. and 2c. respectively. Orders are received at the office until 9.15 a.m. each day, and then different students employ their spare time during the morning in preparing the requisitioned supplies. At noon relays of waitresses set up small tables equipped with white oilcloth covers, pepper and salt casters and white tissue paper napkins. These girls also serve the orders as given, receive the money for the same, then wash up the dishes afterwards, and leave everything in spotless condition. As a remuneration these girls get soup and one beverage free once a week. In evidence of the popularity of this scheme it may be said

that in seven weeks 1225 orders were filled, and $42.38 taken into the treasury. A clear profit of $10 was invested in curtains for the kitchen windows, with all necessary accessories.

Connection between H. S. Department and Factories:—

So far as the Household Science department is concerned, its connection with the factory is a two-fold one.

It has been estimated that 95% of the school girls leave school in this town at the approximate age of 14, This means that the greater number of them go into the factories of the town, but equipped with a two-year course in Household Science, one year having been spent in sewing and the other in cooking.

The other connecting link is through the medium of the evening class, which is held by the Household Science teacher once a week in the kitchen of the Department. A great effort was made to create a wide-spread interest among the factory girls in this course of evening education, but was met with little encouragement not more than 20% of those in attendance being associated with the factories.

SESSIONAL PAPER No. 191d

CHAPTER LX:
SOME REPRESENTATIVE COMMUNICATIONS RECEIVED.

(1.) THE BUILDING TRADES.

Kingston.

A Committee representing the several building trades of Kingston submitted the following report:—

Technical education on a large and comprehensive plan, and technical education which is not now available in this city, or in any city of the Province, is the question of the hour.

Leaving School Early.—The boys and girls are leaving school at an early age—12, 13 and 14. They are going into trades and occupations of various kinds. The parents may be somewhat to blame, but most of them appear to be of the opinion that a liberal education is not necessary for one who is not going to engage in mental pursuits. They are not aware, as all employers of labor are, or should be, that the better education the youth has, the better equipped he is for the battle of life. The more he learns in the school the less he has to learn outside; and of many subjects he must have a greater knowledge than the public schools afford. There should be a higher and finishing form for those not intending to go in for the professions. This form should take up commercial and technical work which would prepare the pupils for the various trades, and give them a chance to choose a trade themselves and get a good grounding in the first principles.

Apprenticeship System.—It is not a discovery that the trades have suffered through the abolition of the apprenticeship system. This system was exacting. To many it was uncomfortable. Some were depressed in consequence of it. But generally it meant that the boy that apprenticed himself to a contractor learned his trade and learned it well, because the contract called for devotion on the part of the apprentice to his duties and care on the part of the master to all obligations which he incurred. Today a boy would find the greatest difficulty to become apprenticed to an employer by the rules and regulations laid down and enforced by the Trades Unions. For instance, under Union laws a boy cannot become an apprentice to learn Masonry, Bricklaying, or Plastering if he is past the age of seventeen years—an age at which probably not one boy in fifty is rugged enough to undertake the arduous labor in connection with the above trades. And even then the number of apprentices is restricted to not more than one apprentice to any one employer in any case. We are also under the impression that the Trades Unions fix and enforce a minimum wage to be paid apprentices at so high a rate as to make it unprofitable for an employer to undertake the teaching of a trade to a boy. Without the apprenticeship system and the training which it implies,

the way is not open, as formerly, for a practical training in the trades of the day, and there is no school in which the youth may, under competent direction, display the characteristics which will determine what should be his calling in life. The scarcity of mechanics in the building trades is quite noticeable in a town the size of Kingston, for the reason that we are very little, if any, benefited by the emigrant tradesman making his home amongst us. Such being the case, we have practically no workmen working at the business that are not natives of the city, and who have not learned their trades under the conditions that prevailed before the days of Trades Unionism in the building business in the city of Kingston. As will be quite apparent to you, these men are now growing old, with nobody learning the trade. This being the case, it will be only a few years, unless something is done, before there will be no native tradesmen to do the building of the future.

The First Move.—It is evident that the first need is of more education in the public schools. It should provide for the youths who are not looking for service in any of the professions. Between the Public School and Collegiate Institute—and filling a place peculiarly its own—should be a technical school, the pupils of which should pass the entrance examinations and so give evidence of their fitness for advanced studies. The curriculum of this school should be left to those who are commissioned to organize it, but it should be a school in which all the trades should have some representation in order that the boys may have an opportunity to develop their tastes or display their learning, and that when they have made a choice the best primary training will be imparted. At present there is no school of this kind. In the Institute there is a technical department, but it is limited to woodworking, and fills a valuable place in that school, in that it gives cunning to the hand and application for the general rules and exercises which may be learned in other departments. It is doing a good work in its own field, but it is not accessible to the boys who leave the public schools too early, and who are debarred—through the indifference of their parents or of themselves—from the advantages of a secondary school.

Plea for the Girls.—As for the girls, there is no provision outside of the domestic science school for training of the most helpful kind. All honor to the Kingston Board of Education for its endeavor, under many drawbacks, to meet the changing conditions of the time. It has experimented with wood-carving and metal-work for the boys in the public schools. The girls have had sewing and cooking, but the time given to these subjects has been all too brief, and the object aimed at must have been inadequately served. The technical education which is here advocated will not break into the time of the public schools in the lower classes, but will be conducted in a school set apart for a specific purpose, namely; to develop in the individual his mechanical inclinations, and at the same time add to his mental equipment for any particular line of service. Both boys and girls would be helped in this continuation or technical class, and if this institution were provided we are of the opinion that it would meet the wants of the times.

Defects now Visible.—The average employer realizes how incompetent is the youth who enters his service with mental training only. He is lacking in many essentials. He is handicapped at the very outset of his career. It is this condition which is to be improved by the technical school, to which the youth can look

forward with a new ambition, and in which he may reasonably anticipate success. What is said of the city and its necessities can be said with equal force of the country and its needs. The education of the day is inadequate. It is qualifying the youths largely for the professions, *not for the trades*, and this is the declaration of many of the teachers in our Public and High Schools.

(Signed)

Jos W. Power,
M. Sullivan,
Wm. McCastney.

Toronto.

A Committee composed of delegates from the different crafts in the Building Trade, forming the Building Trades Council of Toronto and vicinity, passed the following resolutions:—

1. That this Committee is in favor of Industrial Education.
2. Also that the teachers should be practical mechanics.
3. Also that schools be controlled by an advisory board, with representatives from the trades interested.
4. We would recommend that continuation classes he held in the evenings. for *bona fide* workmen in their respective trades.
5. We also recommend that a duly accredited apprentice system be instituted.

Windsor.

The Builders' and Contractors' Association of Essex submit for consideration the following resolution as passed by this Association on 6th December 1910, at Windsor:—

Be it resolved that this Association view with no small measure of alarm the passing of the indentured apprentice, and it is our opinion that unless something is done by which their places may be filled by others equally as skilled in the building trade, the time is not far distant when the lack of skilled mechanics will be a serious detriment to the proper and prompt construction of all residential and industrial buildings.

We also recognize the necessity of prompt action, as those who are now classed as skilled mechanics are fast disappearing, with little prospect of any one capable to take their places. It is also our opinion after mature consideration that we must practically depend upon the sons of the workingmen for our future skilled mechanics; therefore it becomes necessary to place an opportunity in their way. In view of such we would suggest that technical training be added to the public school curriculum, so that our sons may have the advantage of being trained in the theories connected with the different branches of the building trade, that later on they may be able to apply this knowledge in a practical way, which we believe would eventually bring about the results we most desire.

(Signed)

G. W. Fruman, Secretary.

(2.) CUSTOM CUTTERS' ASSOCIATIONS.

Toronto.

Mr. H. Tuck, Secretary of this Association at Toronto, sends the following resolution:—

Proposed by H. Tuck, seconded by Henry A. Taylor, that the President do name a committee to make enquiries and correspond with the Royal Commission on Industrial Training and Technical Education, representing to them the necessity to include within the scope of their enquiry the conditions of the tailoring trade in Canada; respectfully emphasizing the deplorable lack of efficiently equipped journeymen, owing to the entire breakdown of the apprentice system in our trade, whereby we are thrown upon the foreign speaking emigrants to supply our needs, and that provision should be made for the training of our young men in this craft, similar to that of other countries. Carried.

Guelph.

Mr. J. A. Scott, Secretary International Custom Cutters' Association, Guelph, writes:—

The purpose of my letter is to seek to impress upon you the desirability, and I might almost say the absolute necessity, of technical education being inaugurated in connection with the tailoring trade. The utter lack of proficient journeymen tailors is a very serious menace to the craft, in fact has been for the last ten or fifteen years, and we are about wholly dependent upon emigration from European and Asiatic countries. We find this source of supply altogether inadequate to the demands of the trade, and many thousands, yes, hundreds of thousands of dollars of business is lost each year because we can't get men to handle it; and unless something is done immediately the trade will be in a worse condition than ever.

For your information I would submit the following: (1) That there is no better mechanical work that our young men and boys can apply themselves to, as owing to the nature of the work they can always be clean and well dressed, and no time is lost on account of inclement weather. The remuneration to a first class mechanic is equal to or greater (and in most cases very much greater) than that ruling in other lines of mechanical work. (2) The good old system of apprenticing boys to the trade has sadly fallen into disuse in our country, and we are not making any first-class mechanics today, young men simply learning a part of some business, the wisdom of which is open to question. Another reason why our young men should take up this line of work is that dress is conceded by all countries to have a marked influence upon the people, and if its highest art is not to be lost, then the custom tailor is to be preserved and not permit the crudities, yes, I might say the vulgarities, of much of the ready-to-wear clothing of the present day to have too large a place in the attire of our people. I don't think I would be putting it too strongly in saying that there is more culture and refinement in the art of being properly and genteely

dressed than the average man dreams of, and its influence goes very much further than is apparent to the thoughtless or the careless thinker.

It was my pleasure when in Halifax recently to visit the Technical School of that Province, where they have already installed a tailoring department, and in conversation with the Principal I was given to understand that their government was looking more thoroughly into the matter, and it was his opinion that they would not be at all backward in lending adequate financial assistance to the project. I might further state that this same line of action is being taken up by members of our Association in the United States, where I believe they are meeting with some success.

Training For Tailors.

Messrs. Nisbet & Auld, Limited, Dealers in Tailors' Trimmings, Toronto, write:—

While we recognize the lack of help available for Merchant Tailors, and know that it is becoming serious to the trade throughout the country, we are not prepared to say how this could be remedied.

It did strike us that a system of schools situated at different points throughout the Dominion would be a good way, hence our endorsement of the suggestion. The practical working out of such a scheme could be outlined better by the Merchant Tailors than by us.

A department of tailoring under the supervision of a practical man in connection with the Industrial Schools about to be established seems the only feasible plan. These departments could be made to some extent self-supporting by utilizing them in the manufacture of such clothing as is usually contracted for by the Government, for such institutions as prisons, asylums, etc.

(3.) TRAINING REQUIRED IN PIANO-MAKING.

Mr. F. Bull, President of The Williams Piano Co. Ltd., Oshawa, writes:—

I am more and more impressed, the more I have looked into and studied the needs as to the advancement of this country, that the time would come when the man who is lacking in technical knowledge, and who has not the opportunity to obtain this information in school, would be under a very great handicap. Perhaps it may be because of the particular care it is necessary to exert in every department of our business, requiring a quality of workmanship over and above the average, that we find it difficult to obtain the proper skilled workmen. The fact remains that we scarcely ever find those applying for positions in our factory, who have sufficient technical knowledge in detail to work in without undergoing a course of thorough training under the hands of some of our experts at the heads of the different departments. We, of necessity, because of this, have for years trained our own men, preferring to take younger men and train them up, it being absolutely necessary to do this, in order to obtain the class of work we require. I know that this must apply in a great measure to all other industries.

It seems to me that the time has come when we must realize that if we expect to make the necessary advancement and progress as a nation, as compared with

the other countries with which we are in open competition, such as Germany and the United States, we must face this question, and realize there is just the one proper way to deal with it—to establish a proper system of education along practical and technical lines, by which means every boy can have a chance to obtain a proper knowledge along these lines who is inclined that way. With our present school facilities I believe we could round out a pretty thorough and general all-round education along this line. If the young men who come to us had obtained at school some practical and technical knowledge their advancement would be more rapid, consequently their earning power would increase accordingly, and therefore their usefulness would be that much greater, and we would benefit accordingly. It would benefit the worker and the industry, and that applies all along the line.

While it requires a certain additional expenditure, and additional responsibilities, yet these matters should be handled in such a way that they may work to the greatest possible benefit to the individual and the State. I maintain that in benefiting the individual, as education along these lines should, we fortify and strengthen the State in every way. The higher type of citizenship we have, the greater the country becomes; the higher the ideals of the workmen, the better the grade of the production; the better position we hold in relation to our competitors in other nations and to the goods we produce, the more prominent we stand out in the public eye in national life, and in the world generally. Therefore, the nation benefits or loses according as these things work out.

There is no doubt in my mind that a move along the lines this Commission is studying out will benefit very greatly a large majority of the younger workmen in this country, and be of great benefit to the nation and our industries, and give a higher standing to the nation at large. Don't let us shirk our proper duties and responsibilities to the boys, who will be the heads of all our great enterprises and business industries of tomorrow. They will be just what we plan to-day they shall be; no more and no less. It is important when we pause to study the outlook, and while it occurs to us from time to time, we perhaps overlook it in the present every-day hurry of things. The little boys of to-day, when most of us have rested from our heavy labor, have to take up the responsibilities of tomorrow, and we should see to it that we fit them well for the responsibilities and burdens that they have to face and carry; and if we profit by the experiences that we have all had to pass through, if we acquit ourselves well, all these things will be added to their opportunities and knowledge, for the benefit of tomorrow.

Mr. H. B. Samells, Superintendent of the Williams Piano Company, Oshawa, writes:—

I have been associated with the industries of Oshawa for the past twenty-eight years with the exception of about two years spent in Wingham, Toronto and Bowmanville, commencing first to work at the bench in the Gibbs Cabinet Factory, where I received my first knowledge of detailed drawing from Mr Johnston, the draftsman for the above Company at that time. The pleasure and interest received from working to those designs created a desire to be able to draw for myself, and quite a bit of my leisure time was spent in reproducing from memory the drawings I had been work'ng from. It was not long before I could

design any ordinary piece of furniture I wished, and could draw it in detail, as I also had a practical knowledge of putting it together. This is why I think a night school would be very helpful, as the student would then get practice in the day time, along with the theory at night school.

Drawing in practical, commercial life must be mechanical, otherwise it is only a picture, and of no value except as an ornament.

My first eight months in the piano business was with the Bowmanville Piano & Organ Co.; from there to the Williams Piano Co., with which firm I have been associated for about twenty years. I do not know of any wood-working institution that requires better material or more skilful treatment than the manufacture of pianos. Consequently out of 225 employees not more than eight or ten belong to the laboring class. Every department is a science and a life study. Take, for instance, the drawing of scales; I have made enquiry and so far as I can learn you can count all the men who do this class of work in Canada on the fingers of one hand, and we have two of them in Oshawa—Mr. Robert Williams and Mr. R. N. Johns.

It seems to me that the young men of Oshawa stand in their own light by being over-anxious for the extra dollars which they earn at laboring, and work at that in preference to learning a trade, presumably to spend the extra money on amusement; then ultimately get married, and cannot afford to learn a trade, and never advance.

In winter or dull times we find fifty laborers to one mechanic applying for work, and it seems to me that a great deal of this can be remedied by proper instruction along the lines of Technical Education, combined with practice of the branch desired.

Our skilled labor is mostly of our own training of bright Canadian boys, who see far enough ahead to know what is good for themselves and the piano industry of Canada. Of course we lose some of them, but we are proud to know nearly all of them are doing well and hold positions of trust in the best piano factories of Canada, and many in the United States.

This is an age of competition. Canada has great natural resources only partly developed, and it would not only be a duty but good business on the part of the governments of this country to assist towards rapid advancement of its industries and I feel sure that great results can be obtained by a proper system of Education along practical and technical lines.

(4.) TRAINING OF PROSPECTORS AND MINERS.

Mr. A. B. Willmott, M.A., B.Sc., Mining Geologist, Toronto, writes as follows:—

Permit me as a mining engineer to tender my ideas on the training that should be given boys who may become prospectors or miners. I do not refer to those who may become mining engineers, for whom good technical colleges are now in existence.

Next to agriculture, mining is the most important industry in the Dominion. We have millions of acres as yet unprospected, and are preparing no one for the

work. Scores of mines will be opened, but almost no Canadians are being prepared to operate them; that is, to do the actual manual work. The illiterate, the foreigner, the ne'er-do-well are the only sources of mine labor. The prospectors are partly recruited from a better class, but are woefully ignorant of their work. Because of ignorance hundreds of thousands of dollars are wasted annually by prospectors and their backers in developing useless mining claims. It is pitiful to see many poor prospectors squandering their last dollar on holes where there is no chance of ore. Equally costly to mine owners are the inefficient laborers employed as drill runners, pumpmen, firemen, handlers of explosives, etc.

The men have usually had only a public school education. At the best they have had a year in high school, and have quit because of their dislike of the excessive study of language and similar work. Their minds turn to the practical. Unfortunately the High School system of this Province is run as an appendage of the University. The matriculation examination into a literary course at the University is the goal set before all students. The Education Department seems to think only of the professional classes, instead of the great majority composing the industrial masses.

I advocate a complete change in the management of the High Schools so that the courses would be adapted to the needs of the people, not to the needs of the University. This will involve a great decrease in the instruction in languages in the High Schools, and its transference to the Universities, where as cultural subjects they more properly belong. This will make room in the High Schools for more practical subjects which the majority of students require. The latter studies can be made quite as useful educationally as the foreign languages they displace, and much more informational.

These practical courses will, among other subjects, naturally embrace a good knowledge of the principles of chemistry and of physics, and of their application to art. How far these applications will extend will vary with different schools depending on the industries and natural resources of the surrounding district. In some small schools and in all the large centres the application of science to mining should be taught.

The courses suggested are as follows:—

Mineralogy. A course descriptive of the common minerals, embracing their physical and chemical characters and methods of indentification.

Geology. A course including a description of the various rocks, methods of formation, erosion, sedimentation, mountain building, etc.

Ore Deposits. A course descriptive of the mode and occurrence of ore deposits, methods of exploring, economic value, Canadian deposits, etc.

These three courses would be of particular value for the prospectors. For miners there should be added a course dealing with the principles of machinery. This course would be the same as that required by all going into mechanical pursuits. It should deal with boilers and methods of firing, steam and gas engines, dynamos, air compressor, air drills, pumps etc. The principles of physics which underlie the use of these machines should be emphasized.

It is not assumed that boys taking these courses will be practical geologists or mechanical engineers. They will, however, have some theoretical knowledge of the work they are to undertake. The text-books put in their hands should have copious references to books and papers where fuller information can be found. The attempt should be made to have the text-book on the different subjects a regular *vade mecum*, helping the student to fuller information after school life.

I desire to emphasize:—

1. The removal of the High Schools from the domination of the Universities.
2. The teaching in these schools of the scientific principles underlying the chief Canadian industries.
3. The application of these principles to various industries. These applications would vary with the requirements of the district served by the school.
4. In many centres mineralogy, geology, and ore deposits should be taught.

(5.) LAKE SEAMEN'S UNION.

KINGSTON.

MR. T. H. FLEMING, Business Agent of the Union, writes:—

I believe that a system of lectures dealing with Charts, Compass, Rules of the Road and all matters pertaining to navigation in general, would greatly benefit all seamen. In saying seamen, I mean Wheelmen, Watchmen, Lookoutmen, Ordinary Seamen and Able-body Seamen. It would not only make them better workmen, but would also assist them to get certificates to take positions as officers. Do I think the men would attend a school for this purpose? Yes, I believe they would. It has been demonstrated that they would attend by the Department of Marine and Fisheries. The Department inaugurated just such a system as I advocate.

When the late Captain Thos. Donnely lectured in Kingston, about three years ago, from fifty to two hundred men attended every one of these lectures, and I might also state that some of the young officers on the Canadian Lake steamers to-day, received the education at these lectures that enabled them to pass the examination which is necessary to procure certificates.

CHAPTER LXI: SUMMARIES OF STATEMENTS OF SOME WITNESSES REGARDING THEIR PERSONAL TRAINING.

Textiles.

George W. McFarlane, Mechanical Superintendent of the Textile Mills at Paris, stated that he had served 4 years' apprenticeship, and had worked in various shops in Canada and the United States as a machinist. He took a Scranton Correspondence Course in Mechanics, including drawing, mathematics, mechanics and electric work.

John Martin, Superintendent of the Wincey Mill at Paris, said that he began at 16, after a Public School education, and worked first in the office. Then he took a year's course at the New Bedford (Mass.) Textile School, and later had private instruction in designing and weaving. He had now been 22 years in this business and was taking a Correspondence Course in Woollen manufacturing. He had been Superintendent for 11 years.

Emanuel Spore, Foreman in a knitting mill, began work at 20, and is now 50 and head of the Department. He got his training through the bosses and his own efforts. He had not taken Correspondence Courses, but had read books on textile matters.

General Engineering.

Henry Campbell, Manager of the Harvester Company, said he first learned stair-building with his father, and followed this trade for 5 years in various cities; then he entered a railway manufacturing concern, taking 15 months in each department, 8 years in all, and working from the bottom up in each department. He had a thorough practical training and was made Superintendent at the end of the 8 years. He had built and equipped 25 shops. He had not taken a Correspondence Course, 'but have read stacks of books.'

Dowsley Kennedy, of the Kennedy Iron Works, Owen Sound, said he had taken 2 years in their own shops, then 4 years in a German Technical School, with summer work in shops, and graduated as an engineer with special attention to shop management. Technical students in Germany have to work 2 years in the shops taking pattern work, machine and moulding shop practice.

Robert Dobie, Mechanical Superintendent of the Canadian General Electric Company, said he had had his training in the G.T.R. shops at Stratford and Montreal where he spent 17 years. He was given a full course through every department—lathe, boring mill, planing mill, assembling department, boiler shop, blacksmith shop, pattern shop, etc.—and then went on the road firing for a time, afterwards entering the drafting office. He studied at night but had no chance of attending night school. He was chief draftsman for the Royal Electric Company. He read technical magazines.

Metal Trades.

John Gibson, foreman of the smithing department in a firm at Oshawa, has 100 men under him. He began in the carriage department, where he did about 100 jobs a year, was 5 years a journeyman, and has been 20 years a foreman. He read technical magazines and journals when he could get them. A Technical School would have been a great help to him.

Burleigh Aikens, a machinist, said he was apprenticed for three years and 9 months with two Foundry Companies, supplemented by two sessions at the Toronto Technical School, which latter he found very helpful. He also took some Correspondence Course study. He served in a shop where his brother was foreman, and so received a good training.

A trained moulder stated that he had served his apprenticeship, and then worked as a journeyman. He took part of a Correspondence Course on Chemistry as applied to steel and iron manufacture, and studied foundry practice books on different lines.

An electrical worker said he had served part of his apprenticeship in the electrical business in the department of motors. He took a Correspondence Course for about 7 months, but beyond some help in arithmetic and algebra, had not found it much use.

Woodworking Trades.

W. J. Beatty, foreman in a Furniture Company, learned the trade of cabinet making and wood carving. He was trained in the Toronto Technical School 20 years ago during evenings and Saturday afternoons for about 3 seasons, taking mechanical and freehand drawing and proportion. This training had helped him to get promotion.

Charles Laway, Superintendent of the Canadian Furniture Co., said he had served no apprenticeship, but rose gradually from a general machine hand and factory man. He had attended no special instruction in evening classes, but read papers and journals.

In Relation to Evening Classes.

James Dunlop, proprietor of the Thomas Organ Company, Woodstock, said that he was educated in the public schools in the Old Country, where more attention is paid to fundamentals. He served 4 years' apprenticeship and attended 2 nights weekly at evening classes; this he had found most profitable.

R. C. Stock, journeyman in a Sewing Machine factory, had a public school education and entered the works at 15, where he had been for 12 years. He ran a joiner machine and band saw, but had no skill as a cabinet maker. He would attend 2 nights weekly at evening classes if any were established. He was taking mechanical drawing in a Correspondence Course, which cost him $45, and he had not finished it yet.

N. B. Jessan, employed in Kennedy's, Owen Sound, said he had been one year in Canada, and had learned engineering in Norway. He attended the High School at Christiana, including one year's shop training, and then took 4 years at the

Charlottenburg Technical High School, near Berlin. The same line of education would not do for mechanics, and night school would be best for them and for foremen.

John Osmond, machinist, said he had served 7 years' apprenticeship, which he considered too long, as 4 years was quite enough. He went to evening school twice a week for 2 years, and learned the principles of machinery, how to read drawings, mending machinery, etc. Blueprints are not needed now, as the work is done altogether from templets.

Alfred Thickett, machinist, served his apprenticeship in England, working 7 years for nothing. He went to night school 3 nights a week for 9 years, and did not find it hard on his health. He held two diplomas.

John Lane, machinist, had served 4 years' apprenticeship and had been a journeyman for 9 years in the Stratford Railway shops. He attended night classes in drawing and arithmetic in his own time, but did not find he got on far enough. He then took a Correspondence Course, but was too tired to keep it up, though he got some good from it. A class room and teacher would have been more inspiring.

Charles Poogh, Assistant Works Manager in the Westinghouse Company, said he left school at 16, served 5 years as an apprentice, and then went to another shop as improver. He took evening classes 3 times weekly during his apprenticeship, and afterwards went to the Technical School for machine drawing and electrical work. Then he went to another firm and attended night classes in London, and finally took 2 years electricity in the Manchester Technical School. He had been with the Westinghouse Company 9 years.

Robert M. Roy, Manager of the Hamilton Bridge Company, said he had spent 4 years with one employer and 3 with another as mechanical engineer, and during that time attended evening class three or four times weekly, afterwards following it up with special courses, and was several years in an Engineering Department. He had been 14 years in Hamilton, and Manager for 4 years.

Fred. Germandt, foreman of the Harvester Co., said he took evening classes for 4 years twice weekly in mechanical drawing while he was apprentice in the Tool Department of the Long Optical Company, Rochester. He was 3 years journeyman with the same firm; then 8 years with the present company. He read technical journals.

George L. Drew, General Superintendent of the Hamilton Steel Company, stated that he had had no technical training. He began at 17 in the office, then was trained in the works and by private study of technical books. He would have preferred evening classes.

John Harrowes, pattern-maker, said he had been apprenticed for 5 years, and took one year's evening class 2 nights weekly in mechanical drawing. Glasgow employers insist upon attendance at evening school. He considered that Manual Training developed carefulness and was good for apprentices in pattern making.

Charles Griffiths, carpenter, served an apprenticeship in the Old Country, then went as improver in some large shops; spent 2 years in South Africa. He never had a chance of attending night school, as there was none within 8 miles, but he wished he had been able to do so, as he saw men from the same bench pass ahead of him, just because they had the education and he had not.

James C. Coles, carpenter, said he had been apprenticed but not indentured, and while apprenticed took evening classes for 2 years at the village school in elementary drawing, geometry and mensuration. He read books on Building Construction, and had taken a Correspondence Course, but the personal help of a teacher is best.

Thomas Cooper, bricklayer, took night classes during his apprenticeship from 13 to 15, studying geometry, mensuration and book-keeping. From 15 to 17 he took winter courses at a Manual Training school in brick and stone work—theory and practice, e.g. arches and openings.

Philip Obermeyer, working printer, was apprenticed for 5 years. No night class was available, but it would have been most valuable.

Ross, a worker in the Northern Engineering Supply Co., Fort William, said he had served his apprenticeship, and during that period attended night school at the Mechanics' Institute for 3 winters, which he had found very beneficial. He found that it made him more competent, even with less field experience, than if he had only the field experience without the night school.

CHAPTER LXII: SUMMARIES OF MUCH OTHER TESTIMONY AS TO INDUSTRIES AND WORKERS.

SECTION 1: LABOR, AS TO AMOUNT AVAILABLE, AND ITS QUALITY.

The scarcity of skilled labor in nearly all lines was deplored. While the supply of labor was sufficient in some cases, it lacked in exactness and tidiness, and was also apt to be careless. The Locomotive Co. at Kingston reported being actually crippled by the scarcity; men were leaving and hardly any applying; it was not a case of wages, but of there not being enough men in the country to do the work. In some lines alien labor is of no use, so that immigration is no cure. One reason given for scarcity is that there is too much tendency to run into professions. The cure is to exalt ambition and educate labor so as to keep more men at it.

While machines have made "machines" of the operators, and reduced the amount of labor in one direction, they have created more skilled work through the manufacture of machines themselves. All improved machinery gives employment to as many men as it displaces, and the progress of the country keeps pace with labor-saving machines, so that no good mechanic need ever fear being out of employment, for machines cannot altogether take the place of men. Indeed one trade (pattern making) has become more of a skilled trade than ever because of the increased use of machinery. The man with Technical Education has a great advantage over one who has to fight his way without it.

It is very difficult to secure the higher grade of labor now required because of finer and greater variety of goods required as compared with twenty years ago.

The lines in which skilled help is scarce, and for lack of which in some cases orders have been refused are:—sash and door making, textiles, electrical engineering, lock making, salt works, blacksmithing, steam and gas fitting, artistic brass works, pattern makers, machinists, roofers, stairbuilders, fruit-canning, textiles and foremen. In many of the above lines workmen are being imported from abroad. One Ontario firm keeps a man in Toronto and in Montreal looking for moulders. The idea of some Hamilton manufacturers is to supply their needs as far as possible from the Technical School by training our own people to fill the best positions they can instead of depending upon foreign skilled labor.

The advantages of Technical Education were summed up by one witness, thus:—It would give a higher degree of skill to workmen; would provide better craftsmen; who would earn more money; it would increase purchasing power; we would have a more prosperous community; people would spend more money; it would thus benefit the whole community.

Employers of labor would welcome Technical Education. A miller said that it would be a great thing for conducting the milling business on more scientific lines. Large millers are employing chemists and equipping laboratories to ensure their production being kept up to the standard. He considered Technical Education an essential part of the national policy in view of the large amount of flour exported. Tanners have to depend on chemists to estimate the value of different kinds of bark. Textile work is more intricate than it was some years ago, and hence skilled men to-day are more successful.

A large manufacturer expressed the belief that Technical Education would increase the supply of labor and make it possible for employers to do more business, besides enabling men to earn more wages, for elimination of waste makes higher wages possible, while the lack of skill sometimes leads to costly mistakes.

A manufacturer of lawn mowers could not tell why they hold their trade in Germany against all competitors; they had just got it and never enquired the reason. They had no exceptional advantages in Germany by way of shipping or cheaper materials. He thought it was a case of quality in lawn mowers.

Another manufacturer said that Technical Education which was second only in importance to farming would enable him to meet competition without any tariff tinkerings (*a*) by increased output, (*b*) by eliminating tremendous waste.

From the workmen's standpoint, Technical Education would be a paying proposition, for education in the man who specialises means a lot to him as well as to the employer. It would have a direct bearing on their earnings. In the case of bar-iron, those paid on tonnage basis in iron and steel works, even though the rate were not increased, would earn more money by turning out more work, and have less loss from spoiled work. A witness put the case thus:—"Men will get more wages and have more comfort and less laborious work if better skilled. A technically instructed man would be a better producer than one who is not."

A skilled man working from the bottom up has more chance of a position than a specialist, according to one witness. On the other hand, a Toronto witness, who represented four or five thousand workmen, expressed rather a misgiving that Technical Education would turn out incompetent workmen and thus endanger markets, especially at times of strikes. This applied also to Trade Schools, but the workers would favor Technical Education that would not present this feature. He said it was generally admitted that Technical Education for those now engaged was the only form to make efficient workmen.

The desire for Technical Education comes from the felt needs of the people.

The testimony of manufacturers, as to how foremen are trained, varies with circumstances.

Proper foremen are hard to get having the required qualities of general proficiency, adaptability to the work, and ability to handle men. Many firms develop their foremen from the ranks. Some have had Technical Education, some have taken a Commercial Course, and others have read books. Foremen become proficient by natural ability and practical experience.

One manufacturer testified:—"A foreman is trained by working along with other men; we see that he is quicker, more intelligent, more diligent with his work; he is willing to learn, and he studies at night. A man with a more general knowl-

edge about his business would be more likely to be promoted. The foreman needs the quality of managing men."

One witness suggests that in the development of foremen an organized reading course would be helpful, because training a man's mind makes him a better mechanic; knowing the reason helps a man to do his work better.

Specific needs of various industrial workers were stated thus:—

Moulders need to understand blue prints and chemistry. For example, one concern has been trying to find the reason for dirty iron causing much loss to the moulder.

In *Stone Cutting*, quick observation and an accurate eye are very important. These could be cultivated by Manual Training in the Public School. Courses in building construction, strength of materials, etc., would be helpful to stone cutters.

A *Building Contractor* believes his workmen would be better for spending two nights a week studying building construction and drawing. They would better understand the relation between trades. Arithmetic is valuable as an aid in estimating costs, but not so useful to a workman as ability to read drawings.

The average *Carpenter* is said to be ignorant of the strength and practicability of his materials, and of how to construct a difficult stairway; so with roofing construction.

Painters and Decorators would improve by instruction in mechanical drawing, building construction, etc.

One witness suggests that for skilled mechanics there should be degrees, the same as for the professions. Set standards and make mechanics come up to them. This would be a splendid thing for the Dominion, and it would stimulate ambition.

In *Electrical Engineering*, for practical experience of students during their course, one University found it better to send them to commercial shops in summer time rather than to attempt to provide equipment of any kind in their own shops, for no University shop is run as a commercial shop is run. Shop managers mostly consent to take on students in summer months, for many managers are themselves College graduates.

For *Mine Workers* there should be provision for teaching chemistry, physics, mineralogy and geology. It would be a good thing if all prospectors and mine foremen had technical training in school. Mine accidents are often due to the fact that men grow accustomed to danger, think less of it, and become less alert; hence the carelessness with which dynamite is handled. A course for prospectors is difficult to manage as men differ so widely in their qualifications that each one requires special treatment. Mine owners gladly co-operate to give students work in vacations.

For *Printers* the International Typographical Union Correspondence course is commended by a publisher.

To *Textile Workers* the Technical School is of little use outside of foremen, dye experts and perhaps boss-carders. Chemistry of dyeing is important in connection with textile manufactures.

Stationary Engineers would like to become proficient in expansion of steam and gas, use of fuel, etc. Engineers need technical as well as mechanical knowledge. There is no course now for teaching stationary engineers; there should be, and also advanced classes.

In *Furniture* manufacture the foremen apprentices and journeymen could be helped (to the advantage of the manufacturer and themselves) by good demonstrations by a teacher competent to finish pieces of furniture in a school for that purpose in some furniture centre. Mechanical drawing, advanced mathematics and manual training would train for this industry, and be helpful to its workmen. Lessons in making and mixing varnish would also be of advantage. An employer thinks Technical Education would be the best thing they could have in connection with different industries.

Industrial Women, of whom there are 40,000 in Toronto—the majority of whom are inefficient from lack of training—should have, in the opinion of the Women's Council, not only cooking, but also fancy stitching, crochet work, knitting, etc., as in South Kensington; the use of sewing machines with attachments, with and without power, millinery, designing, binding and sewing of straws, dressmaking and tailoring, including designing, cutting and fitting; basket weaving; designing of women's and children's costumes and whitewear; crêpe and wall-paper designs; house construction and house and church decoration, as given by Pratt Institute; courteous salesmanship; box and paper bag making; sewing of furs, and embroidery. Technical classes for such would be well attended.

SECTION 2: AS TO APPRENTICES AND APPRENTICESHIP.

(To be read in connection with chapter on Special Apprentice Systems.)

"It is difficult to obtain a sufficient supply of skilled men unless all the time a number of learners are coming on. The more efficient the workmen the better the employer's chances of meeting competition. There are operations that boys can do better than men, because their fingers are nimbler and they do not cost so much." That is met by another bit of testimony:—"We have difficulty in getting men and apprentices. The latter want higher wages." Undoubtedly one of the chief troubles in the whole problem of apprenticeship is that the boy can make more money in "blind-alley" occupations than in regular lines of business requiring a series of years for its mastery. The problem is certainly getting more serious. A Western Ontario manufacturer testified:—"We cannot get good foremen, and our office is handicapped for lack of both skilled and unskilled help. The apprenticeship system might help us out, but the best system would need to be supplemented by more Technical Education. One of our foremen and several finishers are brought from Detroit."

This statement is from one of the brightest and busiest cities in Ontario:—"Ours is a city of diversified industries, yet apart from general education the schools are doing nothing to prepare those who will have to make their living in these industries." And this from another Ontario city:—"Only sons of fathers

in business are learning the trade. It is very difficult to get good mechanics." An Ontario legislator who for years fought for Technical Education said:—"Every industrial centre should look after the boy who leaves school at fourteen; he should work under the charge of an intelligent leader." The Mayor of one of our busiest manufacturing centres, himself a labor leader said:—"People would like to see further opportunity for Industrial Training and Technical Education to enable children to obtain an idea of factory work, and for workmen to improve their methods."

A Windsor firm does not take apprentices because they usually go to Detroit as soon as they become fairly proficient.

The apprentice problem touches nearly every phase of society, and always swings back to the school. An Eastern Ontario manufacturer testified:—"It is surprising how many men can neither read nor write. Such men are suspicious, and likely to be trouble-makers, so we avoid them. The prevalence of illiteracy emphasises the need of the strictest enforcement of the compulsory education law.

The foremen of an iron works thinks that young men do not want to learn, but that Manual Training and Technical Education would induce more to come in. Another says that:—"Apprentices might come to us better prepared in mathematics and mensuration and mechanical drawing." A manufacturer says that in every case he prefers to break in raw men beginning at the age of 17 or 18, but as these are lacking in the general idea of mechanical work and operations of machinery, mechanical drawing, knowledge of foundry work, and chemistry, he has to bring trained men from the United States as foremen.

A contractor complained that very few men can read a blue print; that he could not get the boys to learn, nor a contractor to do the teaching. He thought a Technical School would help materially to start boys right. A High School principal stated that "apprentices are not to be had."

As to how to train apprentices, opinions differ widely. One manufacturer says a man could be helped at his trade when young by attending Night School, which would give him information about the principles of that trade, but that a man can learn his trade properly only by working at it in the shop. The majority of the men who learned the trade by serving as apprentices might be better studying subjects such as mechanical drawing in an evening class; but if a man were not in sympathy, all the education you could put on him would not do any good. A man successful with his hands would be better if he understood the reasons of things, but he could pick that up quicker in a shop than by having even a good foreman teach him at night; while he could not pick up mechanical drawing except in a drawing office or class.

Another stated that an apprentice boy in a moulding shop gets his knowledge right along every day from the journeymen monlders. The reasons for things are always explained to the apprentices in the shops. The boy gets as much from the journeymen as he has a right to. He did not think they would take night courses; it would do them good if they would.

A boy can back out of a school if the conditions are not to his liking; whereas in a shop he signs papers to stay four years. If he went to a technical school

he would be able to find out whether he liked moulding or not before he bound himself. Inspection of shops would be a good thing, to see whether boys were getting the training they should have. In most cases it is the apprentice's own fault if he does not get the instruction he ought.

The Moulders' Union is supposed to help all apprentices to get thorough training; that is one reason for insisting on limitation of numbers, because if too many were allowed in a shop, the boys' training would be slighted.

As a rule the larger the factory the less chance a boy has to become skilled in all departments.

If employers would agree to give all-round training, say in upholstering, provided boys agree to serve at apprenticeship wages for three or four years, more would apply for positions than are doing now.

In the Canadian Iron Corporation at Fort William men serve 3 or 4 years' apprenticeship, according to the department, and at the end of that time are supposed to command journeymen's wages. It is very difficult to secure boys to learn the business, as there are many temptations to highly paid unskilled work which leads to nothing afterwards. Although employers are as willing as formerly to teach boys trades, specialization has become so highly developed, owing to competition, that a boy would not have the same opportunity to learn all parts of the business, but becomes a specialist. Boys do not want to enter apprenticeship, but it is the only way of learning a trade properly.

Boys do not take themselves seriously; they pay too much attention to the clock and have their minds too much on what they are going to do when they quit work. One witness blamed the schools for not puttting something higher into their ambition.

A boilermaker thinks fifteen too young for apprentices; they should be about eighteen or twenty-one, with some education along the line of mechanics.

Our young Canadians look for clean jobs, shorter hours, and more liberty. Apprentices from outside are best, being more mature.

The number and quality of apprentices is not to be compared with twenty years ago. Formerly we had a waiting list; now we take all comers.

There have been only five apprentices in the stone masonry and bricklaying trades in Galt in twenty-five years. There are opportunities for the stonemason and bricklayer in Technical Education.

At present an apprentice has not a good chance to become a general journeyman; there is too much specialization.

Of apprentices in machine shops, none are under 16, yet they lack ability to think for themselves and apply any education they have. About eighty per cent are from the Public School; their arithmetical knowledge is none too good and not applicable to the industry. It should be taught in shop terms, inches and feet, instead of in miles and acres. Decimals do not enter into shop practice, but fractions do, and a good many of them have to be taught shop fractions.

Preliminary education is not exact enough; Manual Training would help them to recognize fractions and decimals from concrete examples. Blue prints should be made in night schools up to the age of 16.

A piano manufacturer said that the old idea (three or four years apprenticeship) used to make the best men you could out of your apprentice, with the result that after three years they had a good man. To-day it is how much work you can get out and for the least possible money to meet competition.

One firm on completion of the Technical School course pays a bonus of $100, plus $50 to those attending the Technical School and showing improvement.

Bricklayers' apprentices could be taught a good deal as to the artistic in panel work and arch work, woodwork, etc.

Apprentices must learn moulding in the shop, though suitable Technical School instruction would help in blue print reading, and also in cupola bricks and in chemistry for foremen.

The Tailors' Union has not been compelled to enforce the rule about the number of apprentices, because of so few apprentices offering. That trade seems to be growing unattractive to young men; wages are fair but work is not very steady on account of the slack season. The ready-made trade is doing away with custom business.

The part-time system is said to be quite practicable where work is highly specialised, doing the same thing over and over again, but different where work is constantly changing.

A manufacturer says that boys coming from the Collegiate Institute are quicker to learn than others, but helpless at first. A course in the school covering work connected with an industry would overcome this. The lack of apprentices is due to unwillingness to begin on lower wages. Apprentices begin at 90 cents a day, but can get $1.25 at the end of six months; in two years, $2.50 to $2.75 a day. Handymen will start at $1.25 and stop at $1.75.

The Technical School would incline boys towards industry and give them a chance to become acquainted with every department of industry, even under the present tendency to specialise.

A Technical School should preferably be a separate institution. With 2,000 or 3,000 bricks and a competent instructor, the school's pupils could do all kinds of arches and panels.

Technical Education would benefit young printers if combined with shop work.

It is very desirable to have the Technical School open to boys; it would keep them out of mischief, keep them from drifting; and the last year of ordinary school should be a technical year to familiarize them with the work of the Technical School.

A large number of boys and girls learn core making. Manufacturers have been very successful in teaching them.

Some inducement might be offered apprentices to finish their course; say, buying their tools at reduced rates.

A system of prizes or part day time might be allowed if interest could be aroused.

A knowledge of drawing, arithmetic, and a general technical knowledge, would be useful in Electric Companies. The more intelligent foremen and superintendents would co-operate with a technical system and would help to give instruction.

The decline of the apprentice system owing to specialisation is not so marked here as in the United States; specialization is not carried to the same extent here. Our work is more diversified because the market is more restricted; manufacturers must of necessity make all round mechanics out of their learners. If a training or technical school were available employers could take on some apprentices in the tool room.

The apprentice course in engineering is four years. Many who take it are college graduates. The Night School is helpful to the latter; no man succeeds except one who can learn more.

One witness said that a lot of apprentices pass through his hands and good mechanics are made of them. The most important thing is to get the boy to understand the reason why of everything he does and reason from effect back to cause and then from cause to effect. He believed in teaching him to draw according to plan, and make the object according to that plan: in other words, teach the boy to think.

Another witness said:—We have young fellows learning a trade in a haphazard way. There are no regular apprentices; they will not settle down to it. As soon as they get so that they know something about it, or think they do, they go away or else we have to give them such high wages that we cannot afford to change them around much. A fellow like that when he reaches 16 would not have as good ability as one who has learned a trade regularly; he would not be as good a citizen. Unless boys have the ambition themselves, we cannot compel them to learn a trade: but I would like to make it as free as possible for them to learn it. If young fellows had a chance to do handwork in their school days before 15 or 16, it would to a certain extent impress them; they would know something of it, and naturally, if they got started at it, they would follow it up.

This is another piece of testimony:—They are looking for money; they have the commercial spirit. The boys' spirit to-day is anything they can get the most money out of. They do not like to start as apprentices and work up. I do not know whether that arises from general scarcity of labor; I find in most cases it arises from the fact that things have changed in general. Very often it is the fault of the parents. When I was a boy the apprentice had a father who saw that he stayed there and minded his business; to-day in a great many cases a boy goes into the factory and after a couple of months gets a chance to drive a grocery wagon for more money, and he goes. The spirit of the age seems to be that boys are more careless; they do not want to settle down to things. We find it very difficult to get a good boy. Employers are far more indifferent to teaching a boy his trade than in years gone by. The tendency is to keep the boy at one thing and disregard the interests of the boy in teaching him his trade. I think the desire of the employer generally is to facilitate production and if a boy or anyone else is specially good at one trade, he is specialised. I do not think it is necessary without improved means of production to teach a boy by apprenticeship; therefore the question of apprenticeship comes as a matter of evolution of industry. I do not think the employers to-day are very much concerned as to what becomes of the boy as long as the present needs are met, and the bigger day's work a boy can do and the longer he stays at it, the better it suits. That somewhat militates against the boy's desire and ambition to make the most of himself.

SECTION 3; AS TO KINDS OF SCHOOLS CALLED FOR.

Both Public and High Schools should be adjusted to meet the needs of those who follow industrial pursuits.

Manual Training, while one of the greatest additions of our educational system, does not go far enough. It could be made very much more valuable by carrying it on to a higher grade. Teaching should be more closely connected with industry than it is, on account of the rapid industrial development. The higher grade should be a school by itself where boys would devote their time to the work, and boys should be equipped for different lines of industry. The evidence of boys who had graduated in Manual Training from Woodstock College was that it trained them for after-life, even those who went in for medicine.

One witness suggested travelling schools for the different industries. He considered young people very susceptible to training. The system of the day school should supplement the system of the night school. The contact of workers in Technical School would make for progress and better understanding.

A workman should be able to secure at a Technical School a knowledge of the theory and science of a business of which he already knew the practice.

The curriculum of the Collegiate Institute is now especially adapted to Industrial Training in several of the lower forms, and a School Principal thought it very desirable that Technical Education should be carried on side by side with academic work to the top of the school.

When a boy goes into industry without Technical Education he simply becomes a machine behind another machine, but where there is room for mental activity, such a boy would be very useful to both factory and country if he had Technical Education.

A large majority of the school population need training for industrial work, and at present technical education is hard and expensive to obtain, for those who need it most. It should be easy to introduce industrial work into the schools.

Technical Education for the workmen should be prosecuted with all possible vigour in order to give them a training that will develop free and independent citizens, and therefore help them to change the present commercial basis of things. The more ignorant the workman, the more easily he is exploited.

One of the most valuable features of technical education would be to show the manufacturers that there was a nucleus for a technical school that would train the young men to better their condition, enabling them to turn out better and cheaper goods. Manufacturers would be able to recruit their staff from the Technical School, and their children would have the advantage of the school; thus both employer and employed would benefit.

Men for the transportation trades should be trained in a technical school; men who knew about the economical use of fuel would be valuable; railway employees should be trained before entering the service. Some parts of railway work can only be learned through experience, but technical education would help in many directions; telegraphers, for example, could learn the elements of their work in a school before taking a position.

A school to teach the moulding trade would be a great advantage, as this trade is the same everywhere, and one school could train moulders for any part of Canada. If boys were trained in light and heavy moulding, they would have no difficulty in obtaining positions, as this is one of the greatest needs.

In one or two firms in Toronto men have organized classes among themseves to discuss and study matters connected with their trade. Manufacturers say they would encourage that sort of thing and would give preference to pupils and graduates of Technical Schools.

What is wanted is a system for training the youth of the country in mechanics so that he can get on further in his trade.

There should be more recognition of individual ability on the part of managers. They should encourage workers to come forward with ideas, and reward them accordingly. The present system of reporting to the foreman is unsatisfactory, because the foreman gets all the credit. A witness suggests a question box or suggestion box as a solution; it would make the management more easy of access. The National Cash Register offer prizes for suggestions varying in amounts, and think that it brings out the best in their men.

The development of the steel industry is the result of Technical Education. A practical man running a furnace in the old days gauged the working of his furnace by the slag coming from it, but nowadays training is necessary, starting with the blast furnace and going right up to the top of the business. That knowledge means employment for other people.

The Trades and Labor Councils have discussed Technical Education, and think that the needs of the workers are not met. They would like to see some further opportunity of technical training. Mechanical Drawing is needed for all the building trades; some carpenters know nothing about stair building, and many bricklayers cannot build arches. The view was expressed that the State should give as much assistance to the training of the mechanic and other hand workers as to that of the dentist, lawyer or doctor. Technical training does not belong to any Province; it is a Dominion affair, and the work that is done in any part of Canada can be utilized in any other part.

Technical Education is a national issue. A reasonable solution of the labor problem would enable sons of wage-earners to attain the intelligence necessary to success in their particular calling.

The Dominion Government could contribute financially without any breach of the Constitution, and should do as much for the industries of the country as for agriculture. It might spend a great amount without infringing upon the constitutional rights of the Provinces. Substantially what is done in Germany might be done by the Dominion Government. Research laboratories would help industrial life in Canada, and give our workmen opportunities of obtaining a better education and becoming better craftsmen. Industrial Education is more Federal than Provincial or Municipal; it relates very closely to the trade and community of the country, which is Federal and not Provincial. If the word "education" be left out and the term "Industrial Training" be used, it is very close to what belongs to Federal jurisdiction, though the great bulk of the work would have to be administered by the Provinces.

CHAPTER LXIII: SPECIAL APPRENTICE SYSTEMS.

(1.) GRAND TRUNK RAILWAY APPRENTICE SYSTEM.

The Grand Trunk Railway several years ago started a class for its apprentice boys, who were eager to learn, and began to teach subjects which at once aroused interest among the boys, bearing as it did on the every-day needs of mechanics. In a surprisingly short time, the desire for knowledge being whetted, it was found necessary to increase the scope of the teaching, as the apprentice boy of the day saw within his grasp the very highest position of responsibility in the management and operation of the road. He realized that here was an opportunity to obtain an education little short of a college course, with a minimum exertion on his part, while at the same time he would be independent and self-supporting.

How the Plan is Promoted.

The entire cost of education at these training schools is borne by the Grand Trunk System, who furnish all the equipment and engage the instructors, who must themselves have had a thorough technical and practical training, so as to enable them to anticipate the needs of the apprentices.

Further encouragement is given the boys to learn by the large number of prizes donated annually, open to competition to all classes on the system, and including free scholarships in engineering at McGill University, as well as handsome cash prizes.

These prize competitions are held at different centres to which the best students at the several centres are invited, free transportation, entertainment and all expenses being borne by the Company.

The appreciation of individual promotions forms one of the strongest features in the system and serves to keep alive the keenest interest in the classes, as the boys realize that as soon as they arrive at a certain standard of excellence, increased pay is their reward, and many of our foremost students of political economy, see in this system, as it is being carried out, the future supply of skilled mechanics, master mechanics, superintendents, etc., being carefully husbanded, and an effective solution to the labor problem, namely, the prompt recognition of individual merit.

The subjects taught are graded to suit the student's ability and in dozens of cases boys who left school when in the second book can now do problems which would tax the powers of a High School graduate to the utmost.

The subjects taught comprise everything from simple arithmetic to higher mathematics, mechanics, machine design and mechanical drawing, and so well has the course been graded that numerous requests from mechanics' institutes and even our larger technical colleges have been received for complete sets of instruction books.

Secures Better School Education.

This system of apprenticeship on the Grand Trunk has also been found to be the means of parents giving their sons who desire to enter the service, a better education than formerly. Before its adoption the only requirement was that the boy had to be 15 years of age. It was found that parents took their boys away from school at 12 or 13 years of age, and put them at some other work until old enough to enter the Grand Trunk shops. When the examinations were first inaugurated quite a number of the boys were turned down, and had to go back to school again before they could qualify to enter the service.

This has not only resulted in prospective applicants getting a better education, but has elevated the moral standing of the apprentices' work, and made the system attractive to boys who have passed the high school entrance examination, and who, although well advanced along the lines of school education, adopt the mechanic's trade in preference to other pursuits.

After the season has closed, the boys at some of the large shops hold what is termed an "Apprentice Night." This is the social event of the season. Each one makes a drawing, which is neatly gotten up and inked in. This is placed on exhibition, and the prizes are awarded for each year of apprenticeship. These prizes amount to $2.50 for the first prize, and $1.50 for the second prize. There are also prizes offered for special colored drawings amounting to $3.00 for the first prize, and $1.50 for second prize. This may be competed for by any apprentice, irrespective of his year, and considerable interest is manifested by those of artistic ability.

Information from the Master Mechanic.

Statement by Mr. Robert Patterson *re* Grand Trunk Railway Apprentice System.

Mr. Patterson had been Master Mechanic of the G.T.R. shops at Stratford for 14 years, and was at the launching of the apprenticeship system, went through it and is thoroughly acquainted with it in all its phases. He gave an interesting account of the beginning and development of the system.

At 15 years of age he was apprenticed, and finished at 20, then was a journeyman for about a year, after which he was made foreman of the machine shops. He learned all the different branches of mechanics; so do the boys to-day.

The system as it exists in the G.T.R. shops was then outlined. Before boys enter the works, they are examined in reading, writing and arithmetic up to decimal fractions. If they pass this examination, and the medical officer certifies to their physical fitness to become mechanics, they are indentured. At first they are put into a minor shop such as the boiler shop, and put at heating rivets, or in the pipe shop. In about 6 months they are promoted, after undergoing an examination. All apprentices are indentured to machinist's trade for 5 years, and to blacksmiths', boilermaker's or other trades for 4 years.

Each apprentice gets a small text-book giving every move he makes in the shop during his 5 years' apprenticeship. For instance, before a boy is promoted from the boiler shop to running a drilling machine, the apprentice instructor

examines him to see that he theoretically knows all about that machine and the work he is going to, so that it only takes him a very short time to do the work when he goes to it.

Before he is promoted to a lathe, he has to be examined again, to see that he theoretically knows how to handle a lathe, so that with very little practical instruction he starts in and does business. There is a regular line of promotion throughout the shops, and when it comes to a boy's turn to be taken from the boiler shop and put in the machine shop he knows that he is going on to a drilling machine. The text-book tells him all the requirements in connection with running a drilling machine—the speed he has to run his drill, the different sizes of drill required for any particular class of work; at what angle to grind his drill, the size of the hole he is going to drill: that is all written down, and the questions and answers are in the text-book; and so on with other different machines in the same way. Of course the boy is going to evening school all this time. One of the great advantages of this text-book system is that it gets the apprentice thinking, and leads him to reading up in line with his work. In that way they are following up this theoretical work ahead of the next job they are going to do, so that very little practical teaching is required to make them very efficient in very short time on the machine they are put on.

Before apprentices get their annual raise of pay, they are put through an examination in drawing and practical mechanics, and if they fail to make a certain percentage of marks they do not get the advance in wages, but are sent back again, and usually in a month or two they get another trial. If they fail the second time they are dismissed, because a boy who does not qualify himself for that examination after the ample time which he has had, is either too stupid to learn the business or he is too indifferent, and is not wanted. By this means they are culled out, and only the very best material is kept.

An instructor in the shop goes around among the apprentices all the time, instructing them how to use and take care of their tools, and as to the best way of doing the work, putting them through every branch carefully.

During their apprenticeship, 5 cents a day is kept back from their pay, and when each apprentice is out of his time he gets it all back, in addition to a bonus of $25. The idea is that if you keep a small amount from a boy, after he is through he has a little fund, and it increases his interest and is an incentive for him to behave himself and stay. Besides, it becomes a very nice little sum by the time he is out of his apprenticeship, and makes him feel as if he was a man and had acquired something. In addition to the money, he gets his diploma, certifying that he has served his time and is a competent mechanic. He can leave the Company if he wants to, but not very many leave. Sometimes a boy is dismissed, and sometimes he may give a good reason for leaving, because his parents move from the city. If a boy has a legitimate reason for leaving, no obstacle is put in his way.

After these boys go through their apprenticeship, they form a nucleus for offices of the Railway, and thus there is a corps of trained young men capable of filling all or any positions in the shop or on the road. They are generally at first made inspectors and given charge of a gang; then they are promoted to foreman; then to master mechanic. There are now on the road two young men in each

division that are being educated for the position of foreman. That is a special line. The Company could not bring in strangers with any degree of success, for they would have to learn the system.

Mr. Patterson thought that every manufacturing establishment ought to have a certain number of young men growing up, following up their particular business, becoming thoroughly conversant with every phase of it. Under this apprentice system they are always right there to make use of. If a foreman or superintendent gets sick or should happen to die, instead of sending to a foreign country for a man to replace him, you have young men in your own works capable of filling the vacancy. That can be done in almost every factory, if not in all. Manufacturers do not realize what it means to their establishment to have young men coming up in their service. In a country like this it is the only method to secure quickly any mechanical skill that may be required in an emergency.

If the Government would offer inducements to manufacturers to take apprentices in this way and educate them, we would secure more technical education that would soon overspread the whole of Canada, with less money and in shorter time than by opening a technical school in all these different places. Even though we have a large technical school well equipped, a boy wants to go through the actual work of training in a shop. Even after 5 years of technical training in a University he would not be as good as a two-year apprentice in our shop, for it is practical training that makes the men that we require in this country.

The Government ought to go a little further, and after a boy has been put through a 5 years' technical training such as is done in these shops and others, there ought to be a place where he could go, if he feels inclined, for a higher and better education, where he could have a laboratory, which he cannot get in the shops. Let the Government give so many scholarships for Stratford or the County, and then those boys who have been apprenticed in the shops could go to the University for say one year. That would bring them into touch with cultured men and give them the benefit of experience in a somewhat different sphere from what they have been in.

The boys in the G.T.R. shops take a great interest in the scheme, and look upon it just like a big school. They have their band, their hockey, baseball and football clubs, and find time for all these recreations. Those are good things, that keep them out of a lot of mischief, preventing them from going between their studies and their work to places where they would get no good.

Mr. Patterson said he had visited some schools where the pupils were from 8 to 10 years of age, and considered that some of the work they did in drawing and making little articles, as well as in reading, writing, spelling and arithmetic, was really marvellous. He thought this practical education ought to be continued right clean up through and made the final goal, letting other things, such as literature, art, etc., be a side issue. While he believed in culture, both time and money were necessary for that, and it was all right for boys that were to go to the University; but where a boy has to go to work at 15 years of age, he has very little time to spend on that kind of thing, if he is to have sufficient grounding to put him through able to earn his living either on commercial or industrial lines. At present children do not get enough of these. He claimed that the education given

to-day is not as good as that of 30 years ago. When he was a boy of 10 and 11 he learned mensuration, geometry, drawing, algebra, and all such things, but not Latin or Greek or German and French. He learned what he could earn his living at. We do not get that to-day; there is not enough drawing and good practical arithmetic taught in the school to-day.

There ought to be night schools in every town, so that working men's boys who have to go to work could continue their studies at night and have a fair chance with the boys whose fathers are able to keep them at school until 15 or 16.

While the G.T.R. shops take boys at 15, Mr. Patterson would very much prefer to see them come at 16. If he had his way, he would keep them at school until 15 or 16 if possible, especially if the industrial side was given to education, for a boy of that age would learn quicker, and better realize his opportunities and responsibilities. But of course people with big families cannot afford to do that, and we have to consider all these things.

(2.) NEW YORK CENTRAL RAILWAY APPRENTICE SYSTEM.

Mr. Henry Gardner, Assistant Superintendent of Apprentices in the shops of the New York Central Railway system, gave evidence before the Commission at St. Thomas, where the 30 apprentices in the Michigan Central shops are under the control of his department. The trades taught cover machinists, patternmakers, blacksmiths, boiler-makers, car-builders, electricians, moulders, and one or two minor ones.

The apprentices to all the trades (except pattern-making and tinsmithing) must be not less than 17 on entering the 4-year term. They must have a standing equal to the 8th grade of the public school, and be able to pass an examination in arithmetic, grammar, letter-writing and English, set by the Company. The boys spend 7 hours in the shop, and on two fixed days per week they go to school in the morning from 7 to 9 o'clock. This is taken out of the Company's time. The school work is largely practical, i.e. relating to their work in the shops, in arithmetic, drawing, English, etc. A system of examination on papers set by the Central authorities, for all the branch schools, is followed. The teachers are all trained mechanics. The system of teaching is to take rather small groups of boys and to give them what may be called virtually individual teaching. A good deal of help is obtained from pupil-teachers among the boys themselves. Mr. Gardner is quite convinced of the good effect of these schools in improving the *morale* and efficiency of the apprentices. This is, however, greatly strengthened by the continued inspection made by their Board in each school every month.

The various schools of this Company at different points on their system contain 650 boys.

The educational work of the New York Central system is described also in Sec. 8: Apprenticeship Courses, in Part III of this Report (page 1420).

A General Foreman's Statement.

Statement by Mr. Neil Marple, General Foreman, Car Department, St. Thomas, Ont.

When examined by you when you were in this city the question arose:—What instructions should the handy men in our department receive to make them first class mechanics? The question was not answered and I was requested to write you my opinion. To thoroughly understand the situation I will give you the number of men we have working and their occupations. This I think will help us judge for ourselves which are the handy men, at the same time bearing in mind that our first class mechanics do not claim they are perfect. I am of the opinion that they would take the advantage of the Technical School. The subjects they should be taught we will take up later.

On our repair track where we make light repairs to loaded cars taken off through trains for being defective, we have one foreman, three carpenters, twelve car repairers, one air brake repair man and two clerks.

In our freight shop we have one foreman, eighteen freight car builders, two truck smiths, six wood machinists and six laborers and in our coach shop we have one foreman, seventeen coach carpenters, four truck smiths, one pipe fitter and one laborer. This composes all the men that are in any way connected with the carpenters' work on cars.

Beginning with the repair track, the two carpenters do almost the same class of work as the freight car builders in the freight shop. The men engaged at car repairing when hired are laborers and receive laborers' pay but when working at car repairing in four to six months they become experts and represent a good investment for the company. Their work consists of removing and replacing draw bars, draft timbers, draft riggings, buffer blocks, truss rods, journal boxes, wheels and axles, brake beams, levers, rods and bolts and all work of the above nature. From the above you will note that these men do but very little in the freight car building line but that they do know considerable about the building of freight cars therefore we will call them handy men for freight car building or carpenters, and to make them good freight car builders they should receive the following instructions:—a good common school education sufficient to enable them to read and write the English language and to enable them to make ordinary computations in simple arithmetic, such as addition, subtraction, multiplication and division of numbers of four figures and also a course of drawing in building construction. They must know how to use the hand plane, the hand saw and the use of the framing square and how to keep them in good order, how to construct a car, the use of sills, studs, posts, braces, plates, rods and why they are so placed and relation they have one to the other.

Next in line are the freight car builders. These men work in the shop. Those engaged on the repair track work outside. The freight car builders' work is composed of building freight cars, removing and replacing any part of a freight car that is defective and is in for repairs, sills, plates, posts, studs, braces, removing lining, roofing and sheeting. These men may be first class at this, but by no means could they do the work that is required on a passenger coach but we will have to admit that they would be handier than a green man and we call them handy men on passenger car building. To make them first class mechanics at this work they should receive the same education as recommended for the men on the repair track. A course of building construction and drawing is necessary; also on the tools

they should have and their use and how to use them, how to keep them in good working order. In our experience we find that the failure of a man in not being a good mechanic is because he does not know how to keep his tools in good working order. The modern passenger car is finished on the inside with hardwood and must not have planer marks or hammer marks and joints made that can be seen, and to do this we must have good mechanics. To make good mechanics I would recommend for them that which is already recommended. Our most valued employee is the man that can lay out for framing the freight or passenger car from drawings handed to us from our head officers and to accomplish this class of work I know of nothing more suitable than a course of drawing on building construction.

In the paint shop we have one foreman, seven painters and five helpers. The helpers' duties are washing car bodies inside and outside, window sash and blinds and car trucks, burning paint off outside of car bodies and car flooring, sandpapering car outside making it ready for the painter. This sandpapering is done by the helper when a car is to be repainted over the old paint. They have also to paint the trucks. The painter's duties are rough stuffing and coating, staining, grading and varnishing, striping, lettering and designing.

Our painters' apprenticeship course is three years, one year of the three as helper, and to make himself a first class painter a man would need a course as stated under painter's duties together with a good common school education.

In our machine shop we have one foreman, two first class machinists, two axle turners, one passenger car wheel tire turner and borer, one car wheel borer, two drill press men, one bolt threader and one brass burnisher. The duties of the axle turners are turning the collar, journal, dust guard bearing and wheel seat of the axle to standard sizes. The tire turner's duties are turning worn steel tires to standard flange and tread gauge, boring tires to a shrinking fit on the wheel centre, of the car wheel borer, boring the car wheel hub to fit the wheel seat of the car axle. This work is very particular. The fit must not show a greater variation than ten tons push than the tonnage allowed. The drill press men's duties are drilling all sizes of holes such as are required in passenger and freight car building. Some of this work is very particular. The bolt threader's duties are threading all sizes of bolts to fit standard sizes that are required on passenger and freight car building. The duties of the two first class machinists vary somewhat from the duties of locomotive machinist. The locomotive machinist may be first class on the locomotives but does not make a good man on general jobbing such as we have. Our general jobbing is composed of threading and turning all kinds of job work on a lathe, planer work, die cutting, lining, shafting, babbitting, stationary engine valve setting and repairs of any nature to stationary engines, all kinds of vise works. Vise work is composed of chipping with hand hammer and chisel and filing principally erecting and laying out. In nearly all machine shops the apprentices must serve four years to learn what I have enumerated above. To make a first class machinist out of the axle turner and car wheeler I would advise for them to serve an apprenticeship of three years, and the tire turner, two years and six months; the bolt threaders, three years and six months, and the better they are educated the better mechanics they will make.

(3.) APPRENTICE TRAINING AT PETERBORO.

The Canadian General Electric Company has an indentured apprentice course of 4 years. The boys are paid on a sliding scale, beginning at 5½ cents per hour and running up to 10 cents, with a bonus at the end of the 4th year.

Though there is no compulsion, the Company, in hiring boys, tries to impress them with the need of going to school as much as possible during the winter, and even tries to get hold of the parents, but the latter do not seem to want to do much.

There is no attempt to teach a boy everything in connection with a department, but he is taught a particular piece of work. In the tool-room a boy is taught the various operations and machines until he is a bench hand, and he becomes a first-class tool-maker, requiring only experience.

Mr. R. V. Dobie, Mechanical Superintendent, said it would make the boys much better workmen if they were trained in technical night schools, and the Company required more skilled men.

A boy who has had the benefit of night school technical training, would, in Mr. Dobie's opinion, certainly be a better boy at the end of his apprenticeship. He considered 4 years insufficient, and the old system of five years much better, because giving the boy more experience. He thought there ought to be a technical school in a town having so many manufactories as Peterboro.

(4.) APPRENTICE TRAINING IN HAMILTON.

In addition to training ordinary 4-year term apprentices, the Canadian Westinghouse Company receives technical graduates from Universities such as Queen's and McGill, for two years' courses. They go in as soon as College closes, and work like apprentices. This time spent in summers during the college course is credited on the two years' term. Mr. Charles Pook, Assistant Works Manager, did not think that these graduates could otherwise become efficient engineers, as he believed at least two years of practical training was necessary.

The International Harvester Company takes apprentices only in the tool-making department, involving perhaps the most highly skilled part of mechanics. The number taken on depends on the amount of work, but averages a new apprentice every four months. Journeymen are depended on to instruct the apprentice after the foreman has put him on a machine and assigned him to some particular journeyman. Although work is done altogether from blue prints and sketches, there is no instruction in drawing.

(5.) TRAINING OF APPRENTICES AT SAULT STE. MARIE.

Mr. Henry Derrer, Superintendent of the Algoma Iron Works, who is also a member of the High School Board, has during the last two years sent a class of young men to spend every Friday afternoon from 1.30 to 6 in the Technical Department of the High School.

As this privilege has been given without any deduction from their wages, the apprentices appreciate very much the opportunity afforded them to improve

their education, and apply themselves diligently to their school lessons, and at the same time show a greater interest in their work at the shops.

Mr. Derrer has stated that he would make a proper allowance for the work done in the school in the way of shortening their apprenticeship; but so far the value of the training has shown itself in the increased efficiency of the apprentices in the shop, and in the awakening and developing of a desire for self-improvement, not only along the line of their regular work, but in a taste for reading and an interest in those things in life which tend to make better citizens.

The Superintendent finds that the training received by the boys in the studying of plans is a great saving of time in the shops, owing to the difficulty of finding time to give the necessary instruction there, and also in finding instructors who have the proper teaching qualifications to impart the underlying principles in a clear and comprehensive manner.

The school work of the apprentice consists of Mechanical Drawing, Elementary Design, and Shop Problems in Mathematics. They are taught to draw the parts of the machines with which they have to work; this includes also the drafting of the individual parts of a train of gears. From these, tracings and blue prints are made. Manufacturers look upon this training as particularly valuable, for the boys must study the minutest details in making the drawings, and they have to work from the blue prints in the shops. This training is, therefore, of great assistance to them in the reading of the prints correctly and intelligently. In addition to the above-mentioned subjects, about an hour is devoted each day the class meets to the study of English, the amount and the nature of which is left to the discretion of the teacher.

The value of the latter may be judged from the experience in the evening class, where the boys preferred at first to do without English Literature, English Grammar, or History, but after reading one of Shakespeare's historical plays and one of Scott's narrative poems, it was quite evident that a taste for good reading was being awakened, and it was pleasant to observe what a keen interest the boys took in the events of history hitherto unknown to them and in the beauties of literature hitherto unsuspected.

Day Continuation Schools Needed.

Mr. Derrer strongly urged the need of "something to take care of the space between the Public School and the High School; something to take hold of the boy who is otherwise bound to drift after leaving the Public School; to take care of the space between the Public School and when he goes to work." He would have Continuation Classes in the day time, giving enough Manual Training to hold the boy there, and along with this making him take writing, English, literature, mathematics, geometry, etc.

He would start these Continuation Classes in such a building as the High School, and would not require an entrance examination for them. He knew that there were a great many boys who, after being out of school for three or four years, do not like to be trained, yet those years when the boy is too young for shop work, form just the period he should make very good use of.

Although the High School boys would be better for his purpose in the iron works, Mr. Derrer said he could, as a rule, not get them into the shop—"he is too good a boy, and he has been dressed up". So it was the ordinary boy he looked for to get into the shops.

As showing the influence on school work of the presence of industries in a town, this extract from the Report of the High School Principal at the "Soo" is suggestive:—

"All the pupils in attendance at the High School, with a few exceptions, take with much interest the work in the Technical Department. This work does not properly come under the head of Industrial Education, but in the main it is of a technical character, as it prepares for directive positions and for entrance into the higher technical schools. Nearly every boy who passes through the High School takes a thorough course in Mechanical Drawing, continuing it voluntarily in the Third Form, doing the work in addition to the regular work prescribed for Matriculation and Entrance to the Normal Schools. They also spend some time in the Manual Training room, and feel that the time is well spent. There are usually several study periods a week in each Form of the High School, and by bringing these together on one day it is a very easy matter to spare the time without feeling the loss in the other studies of the school. The students who are preparing for a course in the School of Science take a special interest in this class, as some of them hope later on to take positions in the engineering departments of the Lake Superior Corporation."

CHAPTER LXIV: AS TO PUBLIC LIBRARIES.

SUMMARY OF TESTIMONY.

Several librarians stated that there was a demand for technical books and trade journals, and in a number of places this demand was definitely met by the libraries. Some libraries furnish lists of such works suitable for local industries, others send out lists periodically to workmen; another method is to make out cards with synopses of each book in relation to a particular trade. Lists of books are also posted in factories. One librarian thought this would take the place of Correspondence Courses. At some libraries technical works are put in at intervals, but no special effort is made to call the attention of workers to them. In one case a firm of cotton manufacturers had provided a set of books on cotton manufacture in the public library, but it was found they were seldom called for, and other books of a like character were rarely used. A Paper Company donated some books on chemistry for the use of their employees.

The opinion was expressed that employers should provide reference libraries and trade journals for the use of their men. Travelling libraries had been found very useful.

One library was described as a High School and University put together.

Classes in Domestic Science had been inaugurated at the St. Catharines Public Library, being attended by about 100 women. The Library Board consider that no better work can be undertaken than teaching young women cooking.

USE OF PUBLIC LIBRARIES IN TECHNICAL EDUCATION.

His Honor Mr. Justice Hardy, of Brantford, President of the Ontario Library Association, writes:—

I would respectfully submit for the consideration of the Commission that their attention be directed to the possibilities of the Public Library as one of the factors in aid of technical education, particularly on its theoretical side. The condition prevailing in Ontario in regard to technical education has had considerable light thrown upon it by the figures showing the amount of money which is annually leaving the Province for the purpose of technical education through Correspondence Schools of the United States. It was stated by the President of the Ontario Library Association in his address last year, that seven places in Ontario—Ottawa, Peterboro, Oshawa, Berlin, Brantford, London and Sault Ste. Marie—contributed fees aggregating $262,000 which had been sent out of the Province to these correspondence schools in the preceding five years. These figures indicate the crying need of attention being directed by the authorities to an adequate system of technical education for our young men. The figures, it must be remembered, are from only seven of our manufacturing centres, and consequently must be but a small proportion of the amount actually sent out of the country for these purposes.

Further, it should be borne in mind that about 95% of the pupils attending school in Ontario obtain their whole education in the public schools, the remaining 5% attending High Schools, Collegiate Institutes, Colleges or University. It is well known that large sums are from year to year granted for the purpose of higher education, in other words for the training of men and women for the professions. The graduates from these seats of learning become clerygmen, lawyers, doctors, teachers, engineers, etc., and compose those devoting their abilities to the professions. Some effort has been put forth in the establishing of technical schools in the large centres of population, but so far as the work has been carried on it reaches but a very small proportion of the working classes. It is conceded—and the presence of this Commission emphasizes the fact—that the present system is inadequate and defective, and that remedies must be looked for and adopted as early as possible.

One of the means by which much may be done is the Public Library. Through the generosity of Mr. Carnegie and others, nearly every industrial centre in the Province is supplied with handsome and convenient library buildings, where the theoretical work can be carried on. The Library has the advantage of being a going concern, and a natural rallying point for the people; it is supported by the taxation of all alike, and may be said to be the most democratic public institution in the various centres where they are located.

Though the library is not qualified to undertake technical education in its fullest sense, yet on the theoretical side its opportunities and machinery for doing much of the work should not be overlooked. The technical school, college or university, it is true, provides adequate training for the young man who has the time and means at his disposal to attend there; but there is no provision made for the ambitious married man who has a wife and family to support, and who is unable to give much of his time for the purpose of equipping himself for the needs of his handicraft. It is for such that the public library, with its technical side fully developed, may prove of great benefit.

What is required is that the door of Opportunity be presented to every artisan, be he young or of middle age, where the means can be afforded of enabling him to solve the problems which are presented from day to day, and by which he can further train and benefit himself.

The idea of the technical library is to help the poor workman to become a good workman, and to help the good workman to become a master of his craft.

There are in England, I am informed, some 330 technical schools, about 100 of which are connected with public libraries, though not necessarily under the administration of the library authorities. The connection between the library and the technical school, has, I understand, been proved to have been of great advantage. Without the library, the school is sadly lacking and incomplete, and cannot obtain as good results as where the two departments are co-ordinated; a public library, with carefully selected books of reference bearing on the subjects taught in the technical schools, as well as on all the industries carried on in the neighborhood, is considered indispensable to the success of the technical school.

In manufacturing centres of the neighboring Republic, such as Worcester, Mass., Providence, R.I., Grand Rapids, Mich., Dayton, Ohio., Binghampton, N. Y., Newark, N.J., and many others that might be mentioned, the technical department of the public library is doing a splendid work. These libraries seek to afford special facilities for obtaining knowledge in regard to the local industries. At Worcester, in all manner of metal working; in Providence, one of the chief centres of the jewelry trade of the United States, the library affords great assistance in the development of these industries; at Grand Rapids, the furniture centre of the United States, will be found a collection of plates of the best models in furniture, and hundreds of splendid volumes appear on this subject. I am informed that these departments are highly appreciated, not only by the artisans, but by the manufacturers as well, many of whom give aid in the perfecting of them.

I offer these suggestions for the purpose of having the Commissioners bear in mind the possibilities the Public Library presents in any broad consideration of the subject of technical education, trusting that they may be of some slight assistance to your Commission in the solution of the many difficult problems which you have to consider.

VIEWS OF ONTARIO LIBRARY ASSOCIATION *RE* TECHNICAL EDUCATION.

Mr. Edwin A. Hardy, Secretary of the Association, appeared before the Commission at Toronto, and stated that the Department of Education, through its Inspector of Public Libraries, was very sympathetic with the work of the Association, the public libraries having been for fifty years part of the educational system in Ontario. Mr. Hardy presented the following memorandum:—

There are 806 municipalities in Ontario.

Every one of these municipalities contains working men, from hundreds to thousands in each case.

Any comprehensive scheme of education, supported by the money of all the people should aim to reach as many of the people as possible, i.e., one workingman is as much entitled to public assistance as another.

Technical schools are very expensive; there can be only a very few in Ontario, and they must necessarily be established in the large industrial centres.

There will remain, therefore, from 750 to 800 municipalities in Ontario without the privileges of technical schools. What shall be done for the workingmen in these municipalities?

Utilizing Public Libraries.

The Ontario Library Association proposes to utilize the Public Library where possible to meet the needs of these men, and notes these facts:

(*a*) In co-operation with the Inspector of Public Libraries of the Department of Education a good deal of study has been given to the question; in Feb. 1910 a deputation visited American public library centres where this matter has received attention.

(*b*) The findings of the O.L.A. committee on Technical Education are set forth in the report printed in full in the O.L.A. Proceedings 1910, pp. 49–56 (See also pp. 57–67 for a paper on "Technical Education in the Public Library" by an American expert, Mr. E. F. Stevens, Librarian of the Pratt Institute Free Library, Brooklyn, N.Y.)

(*c*) The gist of these findings is as follows:—

1. Utilize the public library, where possible, as a depository of the very best technical books. (There are now about 75 public library buildings in Ontario and over 400 libraries altogether.)
2. Provide these books, partly from funds of local library (subscriptions are available in many places), and partly from legislative grants.
3. Select books to cover the trades of the locality.
4. Begin with libraries ready to co-operate. (A number of Public Library Boards are already working on this plan, over 20 applications for assistance in this matter being now in the hands of the Inspector of Public Libraries.)
5. Use every means to acquaint the workingmen of the locality with these books and to stimulate their use of them—constant advertising, lecture courses, reading clubs, etc.

(*d*) In the subsequent working out of this scheme, it may be advisable for the Department of Education to provide, through the Inspector of Public Libraries aided by experts, syllabi of reading courses in various trades, and examinations thereon and to issue certificates on the successful completion of courses.

(*e*) The working out of such a scheme would accomplish the purpose for which the Mechanics' Institutes of this country were originally established.

(*f*) The local centres where the scheme is being tried report a large use of technical books by the workingmen of the locality, and in such American cities as Grand Rapids, Mich., the centre of the furniture manufacturing, the value of special collections of technical books is esteemed very highly by employer and employee alike. In fact they look upon these books and the lecture courses of the library as indispensable to the maintenance of higher standards in their manufactures.

The Ontario Library Association recognizes that technical education means much for the wealth and the refinement of the Canadian people, that it is a great problem taxing all our resources of men and money to solve, and therefore desires to contribute its share to the solution of the problem.

Recommendations by Committee of the Library Association.

The following details of recommendations and remarks made in the Report of the Committee of the Association, which visited Albany, Boston, Brooklyn, Buffalo, Newark, Niagara Falls, Providence and Worcester, referred to by the Secretary may be helpful:—

That a separate room if possible should be set aside for the artisan, with the books in shelves around him.

That Reading Clubs of workmen should be formed to meet on stated nights.

That foremen and others should be invited to meet the workmen and discuss matter in books.

That lists of books on various subjects should be published frequently and repeated, from time to time, in the local press. The first insertion may not catch the artisan's eye, or at first sight appeal to him.

That lists of books and articles on individual trades or subjects should be sent to the managers of factories with a request that they be posted in a conspicuous place.

That leaflets or booklets containing brief outline reading course on various subjects, carefully prepared by experts familiar with our Canadian local conditions should be sent to factories, and that employers be requested to place such small leaflets in pay envelopes of employees.

That trade journals should be bound at end of year and placed on shelves.

That trade catalogues should be secured.

That the attitude of the library through its staff should be entirely sympathetic and cordial to this movement and to all who wish to use technical books, if the best results are to be obtained in this department; and further, that a great deal of the success of this movement depends upon the ability of the librarian to render this section of the library useful to the inquirer.

That Library Boards should take up the matter of technical education in the library with the manufacturers of the cities and towns and enlist their sympathy and support in inaugurating the local movement, and that the foremen of shops be also called to meet at the local library and have the aims and objects of the technical section explained and their support and co-operation obtained.

That picture collections should be made where possible to assist those engaged in trades where designing is valuable, and also that some good photograph reproductions of great pictures, statues and buildings be hung upon the walls of the library to foster true artistic standards.

That from correspondence with such centres as Binghampton, N.Y.; Dayton, Ohio; and Grand Rapids, Mich., we would recommend also the establishment of lecture courses on practical trade topics by competent practical people. The lectures in the places above mentioned have been exceedingly useful and very much appreciated.

That the importance of evening classes for industrial vocation-education is felt by the Committee, and they would respectfully call the attention of the Trustees of Secondary Schools possessing the equipment suitable for such classes to this matter, and urge them to give it careful and sympathetic consideration; and the Committee also recommends that the attention of the Education Department be called to the establishment of such classes.

As to the matter of instruction through the public library by any such scheme as correspondence courses and examinations and recognition of such work by Government certificate or diploma, the committee do not feel at present able to offer any definite suggestions. They quite realize the possibilities of such a scheme, but they also realize the difficulties and feel that a great deal of consideration would need to be given to such a matter before it should be pronounced upon.

The committee trusts that in many of our libraries this matter may be taken up in earnest. Technical education is to the fore everywhere among nations desirous of maintaining their present standing or making any substantial progress. National governments, manufacturers' associations, trades unions, educational associations and public spirited individuals throughout the world are grappling with the question and the public library must not fail to take its share of the problem. Technical High Schools and trade schools can be established in only a comparatively few centres, and the needs of the workingman in our small cities and towns, who is desirous of self improvement must be met in some other way. The public library should provide this other way. It is the people's institution, the educational centre for all the people of the community, and our librarians and library boards should realize their responsibility as custodians of a public trust and gladly do their best to make the public library a centre of technical education. From what we saw in most of the libraries, we are more than ever convinced that this purpose of the Public Library is entirely feasible.

SESSIONAL PAPER No. 191d

CHAPTER LXV: SUMMARY OF MUCH TESTIMONY AS TO WELFARE WORK.

Moving Pictures.

A number of witnesses complained that the nickel shows were the chief obstacle to educational work in evening classes. While admitting that these could be made to serve useful ends, it was claimed that in the majority of cases they do not, as at present organized, exercise any educational influence. At some shows, processes of manufacture and industries were illustrated, and this feature could be developed to great advantage, especially if combined with popular lectures. It was pointed out that most working girls have no other attractive places in which to spend the evening, boarding houses being the only alternative.

Y. M. C. A's.

Evening Classes are held at many of the Y.M.C.A's, being frequently taught by college men and practical instructors from the shops. Difficulty is generally found in keeping up the attendance during the hockey season, and one witness ascribed this difficulty also to the counter-attractions furnished in the same building. At Y.M.C.A's where no classes are held, technical books and periodicals are sometimes provided, and there is a good demand for these.

Physical Training.

Physical training is a feature to which much attention was called. It was pointed out that the object of such training is to develop the whole man—not only the muscles, but the internal organs and general physical well-being, so that he would be capable of resisting any strain put upon him by his daily work. In public schools where no regular physical training class is held, teachers give exercises 4 times a day and at recess; sometimes those take merely the form of marching exercises.

Conditions of Working and Living.

Several witnesses called attention to the fact that small towns offer more desirable conditions of living than large cities; there is better air; rent and living cost less, and there are more facilities for games and wholesome recreation. It was found that factory employees take great interest in games; it was stated that this interest, while wholesome in itself, had been carried too far, and that young Canadians prefer games and amusements to work and study. Wholesome amusements, particularly out-of-doors, are needed.

The conditions in many work shops were described as undesirable in regard to heating, ventilation, lighting, etc. The sanitary conditions should be of the

best. Healthy conditions are necessary to industrial efficiency, and some employers have realized this, and are paying great attention to the health of their workmen.

Several firms have opened lunch rooms, rest rooms, reading rooms and smoking rooms, and provided opportunities for recreation for their employees. They find this is a profitable investment. Educational facilities are provided in some cases. Many firms have welfare committees which look after the health of the workers, and some employ trained nurses.

By making the factory conditions pleasant and agreeable a better class of men had been secured.

Contact between employers and workers out of working hours is a necessary factor in raising the dignity of labor.

Public Health.

There is need for instruction in hygiene and public health. Industrial efficiency is dependent upon good health, and the subject is of supreme importance.

Medical Inspection of schools is beneficial, if properly conducted, but there is a difference between inspection of schools and examination of individual children. There is no use in tabulating defects unless something is done to correct them and make children more fit for their life work. A course in hygiene for teachers would enable them to relieve the medical officers of a great deal of work.

Inspection of schools is generally regarded with approval. Trained nurses are employed in some places.

Supervised Playgrounds.

Many schools have good playgrounds, but not many supervised playgrounds have been organized. Organized play is a good feature in education.

As to Child Labor.

The age at which children may go to factory work should be raised to 16, and boys between 14 and 16 not in employment should be compelled to attend school. It would be a good policy to provide for the continued education until 16 of those who are unable to afford it without help.

SESSIONAL PAPER No. 191d

CHAPTER LXVI: AS TO AGRICULTURE.

SECTION 1: STATEMENT OF Dr. C. C. JAMES, DEPUTY MINISTER OF AGRICULTURE FOR ONTARIO.

The Department of Agriculture had its beginnings with the Agricultural Societies which were constituted immediately after the organization of the Province itself. Gradually these societies of various kinds came under the direction of the Government and received Government assistance, until some 20 odd years ago this Department was organized somewhat as we have it to-day. It now has 9 branches, some of which are educational:

(1) Statistical Branch—dealing with statistics relating to agricultural productions and values, as well as other matters which have been added, such as municipal matters;

(2) Agricultural Societies;

(3) Farmers' Institutes—to which has been added during recent years the organization of Women's Institutes;

(4) The Dairy Branch—looking after dairy instruction work, inspection, etc;

(5) The Fruit Branch—having charge of all matters relating to the production, care and handling of fruit;

(6) The Live Stock Branch—dealing with all matters pertaining to the breeding, handling, exhibition and sale of live stock;

(7) The Ontario Agricultural College at Guelph;

(8) The Ontario Veterinary College at Toronto;

(9) The Department of Colonization.

In each case the work is in charge of a Director, Superintendent, President or Principal, as he is variously called. Then we have other work that will no doubt be put into a separate branch as soon as it is sufficiently developed, such as our farm forestry work, which is still directed by myself as Deputy, there being no one between myself and the man in charge; and there is our latest development—that of District Representatives and Teachers of Agriculture in connection with the High Schools.

The Agricultural Societies.

Up to some 10 or 12 years ago Agricultural Societies in this Province were left largely to their own direction, and as a consequence were developing along various lines. The Department became convinced that the exhibitions were to a large extent losing their educational features, being run in many cases simply as attractions or holiday events, the main aim seeming to be to gather crowds and make the receipts as large as possible so as to meet the expenditures. In view of the large amounts of Provincial funds that were being given to those societies it was felt that they should be restricted, and that the educational features

should be developed as much as possible. With that in view we appointed a Provincial officer to pay particular attention to that; and while we have not succeeded as fully as desired, yet many Agricultural Societies in this Province today are entirely educational. There are a great many, however, even though closely watched, supervised and directed, which seem to have lost sight, to a large extent, of the aim and desire of the Department to make them mainly educational through the presentation to the public at fairs of the best examples of production of the field, garden and orchard, and the best animals to be found in the various localities. One can readily imagine however, that where large crowds come together, many of whom are not directly interested in agricultural questions, the desire for amusement is likely to be catered to very largely, especially if the gate receipts are kept in view. If Agricultural Societies are to do the work for which they are intended, there ought to be a much more extensive and thorough supervision of the work than is even now taking place.

One outcome of the appointment of the officials to supervise the workings of those societies is the selection of judges who are particularly qualified for their work, who have no local prejudices or connections of any kind, and sending them to judge at fairs, with the understanding that as far as possible explanations shall be given for their decisions. Where men are properly selected and thoroughly competent, that has been found to be a very valuable and attractive feature of the work. There is no question that the services of a very highly trained man, especially in judging grain, would be likely to bring out the best sorts and strains. We have found, however, that the most successful work along that line has been through the selection of the expert men in the judging of live stock. It seems to be easier to gather the people around to listen to an explanation of the fine points of a horse or cow or sheep rather than the fine points of some grain exposed in a bag. The principle, however, is the same. Of course, one great trouble we meet with in this regard is to get a sufficient number of men that may be considered really expert. We have drawn on the Agricultural College short course men for a considerable number and, though we have not made it altogether obligatory, we have urged very strongly that all the men who are sent out as expert judges to those exhibitions should attend those short courses. That certainly is enlarging the usefulness of the College.

The Institutes.

The Institutes for farmers and women are organized locally, and their business is controlled entirely by their own officers. We provide expert speakers to address them for two, three, and perhaps four and five meetings. In the case of additional meetings, which they themselves hold, they provide their own speakers. Our aim is to get the best men who are qualified along various lines, and send them out to address Farmers' Institutes, but we cannot always get them, because the best men sometimes will not go. We have found it rather difficult to persuade a good many men in this Province, whom we look upon as the best men for the work, to go out and do it. I suppose one reason is that we are unable to pay sufficient money as an inducement; another reason given is that those who are thoroughly competent do not care to leave their own work and business in the hands of inferior persons;

they tell us that the risk is too great. A great many men who are sent out are not on the staff of the Agricultural College, though we use members of the College staff as much as possible; but in the ultimate result it is the same as University extension work. Last year we must have held at least 300 Farmers' Institutes, besides many meetings organized and held entirely by themselves of which we have no record.

Similar work is done under the Women's Institutes, which far exceed the men's Institutes in numbers, because they are organized for smaller areas. In some counties we have five Women's Institutes for one Farmers' Institute. That is necessary because the women are not able to go so far to attend meetings. The growth and development of Women's Institutes is probably the most extraordinary that we have had in connection with the whole Department of Agriculture. Within a very short time the Province will be thoroughly organized.

The Dairy Branch.

Our dairy instruction falls more directly under what is considered educational work than anything already given, because we have dairy schools in operation at Kingston and at Guelph, the latter being an outgrowth of the dairy department of the College. In those two schools we give a definite course in dairy work quite similar to work along other lines in the college or in any technical school. We are giving an educational training of a technical school nature and granting diplomas to those who complete the course. These men thus trained are available for our larger fields, our extension work in dairying—the holding of dairy meetings, dairy conventions, instruction to patrons of factories—and we use a large number of them also every year for giving instructions to makers in cheese factories and creameries, and in doing what we sometimes call inspection work. We have about 35 of those dairy experts at work now throughout the Province carrying on their work under 2 chief instructors, in Eastern and Western Ontario. I think we have the dairy instruction work more thoroughly organized along educational lines than any other branch or division of our entire work.

The cheese factories and creameries at one time contributed towards the expense of that work, but we found that we were giving help only to the best factories and creameries, which were the ones that responded and contributed, the result being that the poorer ones, that were doing the most injury to the business, were being neglected. That was a most serious set-back to the development of the whole dairy industry, hence we decided on making the change.

A similar principle would apply to all the different branches of agricultural work. Even where the men are doing well and are willing to pay for special instruction, that does not touch those who need it most, and so our Government provides it for these latter.

In addition to that we have taken up the matter of legislation, and have been year by year improving the status, until we have gone to this length—that on and after the 1st day of January, 1911, no one will be allowed to carry on the work of the head maker in any cheese factory unless he has our diploma .That has been a gradual growth or development. We are looking at the question from the

public standpoint. The effect may be to wipe out some of the inferior factories. That was not asked for by the men who hold certificates now. That agitation has come from the progressive men who are interested in the dairy business. Of course the men who are holding certificates are quite agreeable to it, but it has been no desire on their part to make it a close corporation or anything of that kind; it has been done entirely in what was considered the general interests of dairying in the Province.

The work of those dairy schools has given the Province an adequate supply of trained men. We have a provision whereby men who have never attended the dairy school, but who have shown themselves competent and who have been for some time engaged in the business, shall be given a certificate issued directly from headquarters. We are aiming at working no harm or injury to any person, and those certificates have been issued already.

The Agricultural College.

My own experience in connection with the Ontario Agricultural College goes back some 25 years, and I think it has made a very steady and satisfactory growth. We have students from other provinces than Ontario, notwithstanding that very rigorous regulations have been enacted which would exclude large numbers of such students as were formerly taken in.

Some 22 years ago, when the institution was struggling for its very existence, when the number of students was somewhere between 125 and 150, one means devised for bringing students to the College was to allow the various County Councils to nominate students who would go there free of tuition; but with the growth of the institution, and the exclusion of those who had no previous experience in practical agriculture, the attendance has been such that it was found no longer necessary to give that encouragement, so that was taken off the statute books some few years ago.

As to District Representatives.

The one serious trouble about all the work of which I have been speaking, except that of the Agricultural College, is that the educational assistance has been directed largely to people of mature years, with the result that we have simply got to keep going over the same ground year after year. For instance Farmers' Institutes do not reach the younger people; they give information to men who have reached mature years, who are perhaps not ready to learn new things, or not very apt in taking in instruction—at least not so much so as young men and boys. Hence, we have felt for many years that we are working at a disadvantage in connection with the development of our agricultural communities, being unable to get hold of the young men at the age when they were in a more receptive condition.

Some 5 years ago the Departments of Education and Agriculture got together and devised a plan which we thought might well be attempted to carry out what we desired in connection with agricultural instruction. The plan of district representatives now in operation is the outcome. Briefly it was this:—

A county was selected, and in that county a High School conveniently and favorably situated at which to begin the work of agricultural instruction. We selected one of our most promising graduates of the Ontario Agricultural College, a man who had been brought up on a farm, knew the practical work, had taken a four years' course and received his University degree. He was appointed Agricultural Teacher, with a salary of $1200 fixed and provided by the Department of Education, and attached to the High School. He received his appointment direct from the local board, and was put on the staff of the High School just as a teacher of Mathematics or Classics or English would be. The trouble was that there had been no teacher of Agriculture at the High School, and when we sent this one, there were no pupils who wished to take agricultural work; all the students had come to that High School to prepare for teachers' certificates, for college matriculation, or for preparation for one of the learned professions.

We next appointed him as the local or District Representative of the Department of Agriculture, and gave him instructions to open an office, which we equipped. We told him to set to work and make his constituency. His method is to ally himself with the various agricultural organizations—Agricultural Society, Horticultural Society, Farmers' Institute, etc.—and as soon as he gets fairly well acquainted with the leading farmers of that district he arranges for special classes in various parts of the county, in addition to his work in the school. Such a class may run for one, two or three days; and after a while, following that up, he will perhaps have a short course which will run for a week. He has to get hold of the boys on the farm who had no intention whatever of going to the High School for an education, because there had been no agricultural teaching or training provided there before. He works in that way until he gradually gathers around him out of the county a small class; then he brings them up to the High School and starts the class, which runs for 6 weeks or two months, or the whole year.

In doing all this work we give him a considerable amount of latitude. By arrangement with the Department of Education his hands are to be comparatively free, so that if he goes into a dairying county the work he is carrying on will largely have a bearing on dairying; and so with fruit, live stock, etc. Thus after a shorter or longer time he gradually brings into the High School a class of young men off the farm who would have never come to the High School at all.

In 1906 there were six such schools or departments established, followed the next year by three more, the next year by two, and the present year by three, so that we now carry on the work in 14 counties. As preliminary to permanent appointments we did some work also this year in two additional counties, so that we have been carrying on agricultural instruction through regular Guelph College graduates in 16 different counties in Ontario this past year. Although we have made various efforts, this is the first time along this line that we have been able to get a permanent grip upon the young men on the farms in the way of giving them practical agricultural instruction. The work has grown to such an extent that in most cases we have had to send an assistant to the representative in charge. He gets his salary through the Department of Education, and all the other expenses are borne by the Department of Agriculture, and of course he carries on his work in co-operation with the officers of our Farmers' Institute, our Agri-

cultural Society, our Fruit Branch, our Dairy Branch, etc. The aim is that the Secondary Education of the High School shall be adjusted and adapted to the particular occupation of the locality. One very important feature of the plan that was fully discussed was not to tie down this work by hard and fast regulations, but to allow it to develop in the different counties along the lines that seemed most favorable. We have been very careful in the selection of the men to do the work, and I think from the results we can say that we have met with a very great amount of success.

The largest class thus far was last winter in the town of Picton, where our instructor had 32 young men from the farm. He brought them into the High School and carried on a series of classes similar to those in other branches of the High School. Last week he told me he expected this coming winter to have at least twice as many in his class. He had an assistant temporarily, as the work had grown to such an extent. In addition to the agricultural work he gives them some botany, some broad instructions in the judging of live stock, judging of seeds, composition of soils, etc., and he arranged that the commercial master in the High School shall give them some work along technical lines, and in one or two cases they have had some instruction in English as well; but that is varied in different schools according to circumstances.

I see room in the near future for evening schools throughout the country, either through those District Representatives or otherwise, in the summer time for boys on the farms, to see crops growing and see plots at a School Garden. That will be in sections where population is sufficiently numerous, so that they could come without any great inconvenience or loss of time.

I certainly feel that in all this work, the expenditure of public funds for Technical Education in Agriculture, has proven immensely remunerative in Ontario. There are many evidences of that. It is very difficult, of course, to prove by direct results the value of education; but we are beginning to get results of a most definite nature in connection with the work of the District Representatives. Were we to close our work in Essex, Prince Edward, Simcoe or Waterloo county I would look for a deputation immediately demanding the return of our representatives. The work is very much appreciated in the localities. I don't think any work we have ever undertaken is calling forth so much appreciation as this, for the reason that we bring it right home directly to the farmers in a practical way, and they are getting immediate results.

Agriculture in the Public School.

The High School was chosen first because it is the county school, the only school in the county in which all the people are interested; but we are hoping that in time the benefits of this work will be seen so plainly that the farmers themselves will insist on some instruction being given in the Public School. With a view to what is coming in the near future, special courses have been provided at the Ontario Agricultural College to supplement the training of Normal School teachers in Toronto and elsewhere; and for the last two years an opportunity has been given to a large number of the teachers-in-training to complete their work at the

Ontario Agricultural College. They have taken that work at the expense of the Government, railway fare and board having been provided. When those teachers go to the rural schools they will be able to teach the old curriculum and also develop certain features.

The serious trouble in connection with the teaching of agriculture in schools is that our teachers are not qualified for it. You cannot expect a young lady who has been born in a town or village, and then takes a course at the High School and at the Normal School to take up school work in the country and teach boys from the country anything about agriculture. That school term at Guelph for teachers ran from Easter last year until the 1st of July, very nearly three months. The teachers dropped out of their Normal School course here at Toronto, or London, or wherever they were, and completed their course at Guelph, and on completion they were given a special certificate, stating that they were specially qualified. In regard to those teachers, the subject which is introductory to agriculture is School Gardening. That is something that can be readily introduced into the country school, and I don't think it could be expected, under present circumstances at least, that they could do very much beyond giving the pupils in the public school some instruction through the School Garden that might be established. The School Garden as a physical basis for Nature Study would be very admirable. Unless the whole system of rural school work is overhauled and changed it seems almost impossible to do anything in the rural schools beyond what I have just indicated.

Salaries Must go Up.

As to the direction in which overhauling might be made with advantage, if we could get the people of this country to pay the price they can get the teachers. If they are not willing to pay more than $300 for a teacher in the country I don't suppose we can expect to get more than $300 worth of teaching; but if we can bring them up to the point of being willing to pay $700, $800, $900 or $1000, we could reasonably expect to provide them with teachers of better qualifications who would give them a wider range of study. I can state that the salaries paid by our Department have increased within the last 6 or 8 years from $600 to $1000, for dairy instructors. I do not think there is any doubt whatever, that the immense increase in revenue from that one branch of Agriculture, has many times repaid the extra instruction for it. I doubt if any money expended by this or any other Government has shown much direct results as the very moderate expenditure made in connection with dairy instruction. I do not think that this country can invest any money to better advantage than in connection with the improvement of Public School education—and I mean education along all lines, technical as well as others.

On Machinery and Labor.

I have no hesitation in saying that farm machinery is being used largely in this country because the farmer cannot get the amount of help to do his work that he would like to have; and it is not a fact that young men

leave the farm because of the improved machinery being introduced. I think the farmer manages with less than half the number of men now on account of the machinery. There is the desire of the farmer, the same as of industrial employers, to do away with as much labor on the farm as he possibly can, but the machinery has been bought very largely because the farmer cannot get the labor. Labor is scarce, and he thinks labor is expensive.

Even if there was an abundance of labor, the farmer would quite likely still have machinery if he could produce his crops more cheaply by its introduction, just like people in towns and cities.

In discussing the question of young men leaving the farm, the introduction of machinery has something to do with it. It is a very complicated question; but I do not think the question of farm machinery has played nearly so important a part in it as others. I think the boys are going to the towns and cities largely because they think they can make a great deal more money there. Certainly some go because they have to. If a farmer has a large family of boys, and only 100 acres of land, what else can he do with some of them? But we are hoping that if we can only get this agricultural education extended sufficiently we will save a lot of the best boys for farm work. In the case of those young men to whom we have given education and instruction, whom we have helped in the technique of agricultural work, there is less inclination to leave the farm. I am of opinion that the 32 young men who formed that class in agriculture at the Picton High School are likely to stay on the farm, every one of them. I sincerely trust this Commission will look carefully, as you have opportunity, into this question of technical training of young men on the farm. The technical training of young men in towns and cities is a minor matter in the development of this country in comparison with the question of proper training of young men in connection with agriculture.

How we can expect to have any permanency in teaching with the small salaries that are paid in this country is a mystery. There is no doubt but that the low wages paid to farm laborers are reflected in the payment of teachers in the country districts: one has a bearing upon the other. Of course farm labor has advanced in value very much, perhaps twice as high as it was 25 years ago. It has advanced relatively more than have teachers' salaries. Those agricultural classes in the counties help the attendance at the Guelph College; quite a number of boys have had their first insight into agricultural instruction, and have gone to the Ontario Agricultural College to take the longer course, who otherwise would not have known anything about agricultural education, and the probability is that they would have drifted off the farm.

SECTION 2: STATEMENT OF Mr. G. C. CREELMAN, PRESIDENT, ONTARIO AGRICULTURAL COLLEGE.

In 1885, ten years after the College opened, there were 100 students in attendance at all classes; in 1909 there were 1296, including short course students. In 1885 there were 7 instructors in charge of as many departments, now there are

46 instructors on the staff, 12 of whom are dealing with live stock, dairying, etc., and the sciences related to these. There has also been added recently to the College a branch for women.

Courses for Rural Teachers.

The Provincial Department of Education have felt in recent years that the Agricultural College, and its farm and equipment, might be used by that Department, as well as by agriculturists, in some way for giving instruction to teachers engaged particularly in rural schools, that would enable them to be more useful to the sons and daughters of farmers than was possible under the old arrangement of instruction in cities and towns in Normal and Model Schools only.

First, some of those who were being specially trained for teaching came here by special arrangement, through the generosity of Sir William C. Macdonald whereby teachers from different Provinces were sent here on Scholarships, with expenses paid, to get what information they might that would be useful to rural sections of their respective Provinces. That plan went on for a number of years, and from it grew the desire of the Department of Education to continue that work more especially for teachers of this Province. The result is that we now regularly receive each year between 100 and 200 teachers from the Normal Schools, who in the opinion of the Normal School staff are capable of completing the usual 9 months' Normal work in 6 months, and those teachers are permitted by selection to come here the last three months of the Normal term and study agricultural or industrial subjects. Then in the summer, to meet the demands of teachers who cannot come from their schools during the 8 or 10½ months, we put on during the month of July a similar course for teachers, which is more or less complete in itself, but which may be continued from summer to summer, leading to the same certificate given to the teacher who stays the full 3 months. The College has thus become a training place; and I am pleased to say this branch of work is increasing rapidly each year, last summer's class being the largest class we have had.

Farmers' Institutes.

You will remember that Farmers' Institutes were started at this College, because we had the only trained men here proficient in presenting agricultural problems to the people; and, commencing in 1885, the students were dismissed in January, so that the College professors might go out in the highways and byways and teach agriculture to the farmers. Commencing with 12 men the first year, it has gradually grown until it became a Provincial means and method under a Provincial head at Toronto. Now our professors can only give to that work very little attention from time to time. The professors in our several departments are constantly furnishing, by means of their reports, exact information that other men can use in their addresses to the farmers They are using our bulletins and reports, and, so far as they have time, attending short courses themselves. Last year 1,800 meetings were held as compared with 12 that were held in 1885. These meetings become a very widespread means of imparting information. They must be held in each legislative riding during the year in order to get the Government grant, and there has never, except in one case, been a default.

Extension Work.

The Experimental Union is our direct administrative effort in placing in the hands of farmers for their own ends the information at first hand that we acquire here, carried further than by word of mouth. They are actually doing things, not only as recommended by us, but with material supplied by us annually. There are over 5,000 members of that Union of Farmers in this Province who are conducting experiments on their own farms and reporting to us once a year.

Then the chief officers of our Dairy and Animal Husbandry departments are utilized by the Provincial Fairs each year to demonstrate details of their particular line of work to the thousands of farmers who attend the fairs; and, so far as possible, special men from our institution visit certain fairs in the Province and give demonstrations on various subjects, such as illustrations of diseased plants, methods for destruction of injurious insects, etc., with practical information for them. That is really a form of college extension, and a very valuable one.

It has become a custom for judges at fairs to give reasons for their decisions, particularly regarding live stock, in which a man is not presumed to be competent to judge unless he is prepared to give his reasons. The Department of Agriculture in Toronto has now a Superintendent of Fairs, who arranges the 500 fairs in this Province into groups, as far as possible, sending inspectors regularly, and they are all instructed to give their reasons for their awards. I could not say what percentage of these men have taken a course at this college.

Ontario subsidizes a good many Associations for advancing agriculture, such as Dairymen's and Horticultural Associations, and similar ones; and to quite an extent each of these organizations looks to the head of the department most closely associated with it in this College for information and for addresses which may be published in the Annual Report of the Association.

In these various means whereby the Province is helping the agricultural people, the College is taking some part of carrying on the work.

The College Graduates.

The College Course that leads to a degree at Toronto University is four years. Our graduates have been in such demand that a majority of them have gone into public life of one kind or other—either as teachers at agricultural colleges, assistants at experimental stations, editors of agricultural papers, instructors in dairy schools, assistants in the Department of Agriculture in the different provinces of the Dominion and at Ottawa. Many have taken positions as farm managers, etc., rather than return to the farm, because of changed conditions at home after four years, as where younger brothers have come along and handled the farm.

Of all the ex-students who attended the college in the regular course in the last 25 years, 54% are now residing in Ontario, and of those 71% are engaged actually in farming. The others we cannot keep track of so well because they have gone to other Provinces.

The Agricultural Press, and the agricultural part of the Weekly Press, is a helpful means of advancing intelligence in rural parts, and a man editing or direct

ing such papers could not do the work without training. Some have been trained in the principles and arts here. Our graduates are performing a real valuable public service in such a capacity.

The District Representatives.

Some 14 positions as District Representatives have been opened under the Ontario Government that require preparation here as a qualification; and no one can be appointed to these positions without being trained in the Agricultural College. These men have primarily two functions to perform: (1) They teach in the High School or Collegiate Institute farmers' boys who may attend four half days a week. In many cases it has been found expedient to make a course of three months from January to March, and give practically all their time during those months to teaching agricultural students in the High School. (2) In a general way, or as specific as the education of the farmers in the district will permit, their services are available for helping agriculture in that particular county.

The District Representative first opens an office which is composed of two rooms. The local Farmers' Institute or local Fall Fair, or any other local organization may hold its meetings with advice and counsel and secretarial help from the agricultural specialist who runs the office. He is not only prepared to give advice to any who may come in, but will identify injurious weeds and insects, also unknown plants. He will, in co-operation with our Department, have plans laid out properly for farm drainage: and he naturally falls back on his old professors in his Department to give him every opportunity of carrying this College to that county. Thus he is an extension arm of the College, doing local work. He is there first for the purpose of helping the young men of his own age who would have confidence in him and allow them to discuss their affairs with him, and after that the fathers and older members. The young men who take work with him at the High School come so well prepared to take our work in agricultural science that they have been permitted to enter our second year, and have proven very worthy students; in other words, the two years' work taken in the High School with our local representatives has given them what takes the place of one years' time at this College. The extension of that work will in the long run be likely to lead to more of what might be called primary work being done at High Schools, this College being reserved more for advanced work. I understand the Government is almost besieged with applications from counties for these representatives, and the policy has been to add to their number each year, as limited funds at their disposal will allow.

Funds Scarce and Hard to Get.

In regard to these limited funds, I think it very poor policy to limit expenditure in regard to agricultural development policy in Ontario at the present time, but the fact with which we are all more or less familiar is that agriculture, being unorganized, the rural people have not been able to impress upon governments the necessity for large expenditures for rural affairs. The result is that in all Governments with which I am familiar the Minister of Agriculture, though ever so strong and capable either in handling the case, or in farming on his own account

on his own place and therefore knowing the needs, is not able to cope with the other professional men in Cabinets so as to get as large a grant as we think could be spent to good advantage in the work. I think all the money expended for this purpose has been exceedingly profitable to Ontario.

Evening Classes and Demonstration Farms.

If those District Representatives held evening classes once or twice a week for the young people of the neighborhood in the summer time to discuss growing plants in the garden and new crops that might be grown there, I am quite sure a number could be got to attend, and those who came would be likely to learn a great deal that would help them in their work on the farm.

If a real good farm were close by illustrating the best management of seeds and cultivation and rotations, I think there would be much gain by having the young people come to a class at the school garden, and the old people come once a month to this illustration farm to receive instruction from the expert. If young fellows were trained in their own localities they would be better qualified to profit by this College when they come here. That would be a means also of indicating those who could get most good by coming here. I think that would be a plan worth trying.

It occurs to me that after certain things which are apparently true, and which if applied in the ordinary farm operation would give larger yields for the energy expended had been demonstrated at this College and the Dominion Experimental Farms throughout the different Provinces, those truths could be more forcibly brought home, and it could be done very much quicker if we had many more demonstration farms in this Province, even if maintained by other agencies than Government itself.

The Ontario Government has spent a large amount of money on this institution in the last 35 years to produce a certain amount of information which now has to be put into effect—the right kind of grain, the right way to plant it, handle it and cultivate it; the right way to drain the land; the results that have been obtained from drained land over undrained land, etc.; and I do not know whether the Government should be asked to go very much further and put demonstration farms over the lines of the railroads and in communities where an increased quantity of material produced would more largely enhance the coffers of the railway companies and the banks than anyone else concerned.

For Consideration by Railways and Banks.

Perhaps if the matter were properly placed before the people who control our banks and railways they might do something towards making it possible for every farmer, as often as he has a half day or a day to spare, to see not far from his home the best kind of farming with the best kinds of crops and buildings and everything that goes to make up our ideal of a first-class farm. I think such a plan carried carefully into effect, would be profitable to the railways and banks as well as to the localities. I believe that on lines of railway which go, for instance, from here to Sarnia, demonstration farms of 100 acres, not too far apart, growing

whole fields of such crops as alfalfa, and red clover, with small orchards and neat but not expensive buildings, if advertised free for inspection would without doubt very materially increase freight and passenger traffic from the local districts.

The case of the station recently built on the Grand Trunk at Vineland, County of Lincoln, near our Ontario Experimental Farm, may be cited as an illustration. For nearly three years we argued for a station there, saying there would immediately be sufficient traffic in fruit and other crops especially adapted to that part of the country to justify the placing of a station there; but we had finally to take the matter to the Railway Commission, and justify our contention after canvassing the local community, and learning the actual amount of baskets and barrels the people would promise to ship. The station was built immediately and our calculations more than fulfilled; and now they keep a ticket agent and station master there all the time, with assistants and express clerk during the summer. This is the sort of thing that I think the railways have to have pointed out to them. With one exception I do not know a single man in the employ of any railway in Canada who understands agriculture at all in a scientific or practical way, and I think a large agricultural department in connection with these large roads would pay them handsomely in return by increase of traffic.

The Study of Rural Economics.

I think it is a good idea that the students should get as correct an idea as possible of political economy and its relation to the development of industry, in so far as there is time in an undergraduate course. We have within the last three years appointed a special lecturer on the subject of Economics who is giving a lot of his time and attention to the study of these questions, and who during the past summer visited Denmark and England looking into questions bearing especially on the subject of economics, and particularly that of organization among farmers.

For a number of years we have had excursions to the farm, and between 30,000 and 40,000 farmers come during the month of June. That is increasing. We find about one-third of those who have been here come back, and two-thirds are new each year. It might be stated generally that the College has had a great deal to do with the upbuilding of agriculture and progress in rural affairs generally.

CHAPTER LXVII: AS TO AGRICULTURAL INSTRUCTION IN PUBLIC SCHOOLS.

SECTION 1:
STATEMENT OF PROF. S. B. McCREADY, DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION FOR THE DEPARTMENT OF EDUCATION.

My chief work is the Nature Study department of the Ontario Agricultural College, although I have a work in connection with the department of Botany too. I have charge of the Nature Study department, in short courses for those who come from the Normal School in the spring, for elementary agriculture. It is a ten weeks' course. A few teachers are coming now who have had Nature Study on a basis of School Gardening, in their own school, but very few. Ten weeks is enough to make a good start in Nature Study. There is no attempt to cover the whole field thoroughly. The work in and the conducting of the School Garden while here, is the easy part; the making of the work effective in the teaching is the harder part of it. They are able to start such work when they go to their own schools. In our class in the spring of 1909, we had 97 teachers, and at the end of this school year, after they had a year's experience, I made enquiries among them as to what they were doing and how they had put our training into effect. About 16 out of the 97, most of them in country schools, have started School Gardening. I think all of them are doing effective work in Nature Study even if they have not a School Garden. Many have had work started in home gardens. Many teachers report that for the present year they are not doing anything in that line; the trustees are not favorable, and in some cases the inspectors are not. They find in some cases the schools are very backward. One teacher reports that in the year previous to her going there had been four changes in teachers, and the elementary work was so backward that she was not trying to do anything except to bring them up in their ordinary work.

There is a sentiment growing in favor of our work; we have been advocating and training people for this for seven years. The teachers in the rural schools are so isolated that it would be very beneficial if there was some means of having them joined up with a directing power at headquarters so that they would know what other people are doing, and be told month by month what is going on in other parts of Ontario.

The Inspectors do something of that, but their visits are so far apart and they have so many things to think of. If something could be done at Ottawa in the way of organising a Bureau of Education, something like they have had at Washington since 1867, from which information could be disseminated to anybody

interested in education in Canada, it would be a great help. We have our educational journals, but they are not nearly so common as agricultural journals; in this Province there is only one which is a magazine on method; it does not keep the teacher in touch with her fellow-teachers in any sense.

Mr. McCready writes, under date Dec. 8, 1911:

You will be pleased to know that we are always making some advances in Ontario; in fact, I venture to say that in many respects we are working the problem out better than most Provinces or States through teacher-training, extension work with schools, monetary help, etc. I expect that next year we shall see a decided advance as I have been given a great deal of encouragement in my new work as Director of Elementary Agricultural Education.

We had 33 School Gardens in Ontario last year receiving Government grants, besides many more working under the Experimental Union but not having a certificated teacher and not receiving grants. Already there are about 250 teachers in Ontario holding certificates in Elementary Agriculture and Horticulture. Most of these came to us in special Normal Classes. We expect another class next spring. There will be no let-up to the work.

The Summer School.

A Summer School for teachers is held at the Ontario Agricultural College, Guelph, for four weeks beginning in July, giving five courses comprising:—(1) Nature Study, (2) Elementary Agriculture and Horticulture, (3) Arts and Construction Work, (4) Woodworking and Mechanical Drawing, (5) Household Science. The courses in Nature Study and Agriculture lead to the certificate in Elementary Agriculture and Horticulture granted by the Department of Education; the courses in Art and Woodworking lead to that of Elementary Industrial Arts.

The College aims to be of service to teachers who wish to equip themselves for giving instruction to their pupils along vocational or industrial lines in Manual Training, Domestic Science or Elementary Agriculture and Horticulture.

Teachers in High and Continuation Schools—especially Science teachers—will find the work in Agriculture suit their needs; should the attendance warrant it, special classes will be arranged for these. School Inspectors will be welcome for any part of the time that they may be able to attend. Nearly 200 teachers were in attendance in July 1911, more than half of these taking Nature Study and Agriculture. The total number in the previous year was 120. Lady teachers can be accommodated in Macdonald Hall to the number of about 100, a charge of about $15.00 being made for board and lodging. There are no tuition fees for Ontario teachers.

The teachers who enter these classes represent the progressive and ambitious members of the teaching profession. The amount and quality of work accomplished in the four weeks is always a source of surprise. It cannot fail to prove of great value to teachers who are seeking to lay some practical emphasis on the vocational interests in their school work. When the work of the Summer School becomes better known amongst teachers, there is little doubt that the facilities

of the College will be taxed to the utmost. Several teachers continue to come for three or four years in succession, taking up different work each year. Everyone agrees it is an ideal holiday for a teacher desirous of improvement.

Rural and Village School Work.

The Department of Education for the Province of Ontario, co-operating with the Department of Agriculture, aims to have instruction in Elementary Agriculture and Horticulture given in the rural and village schools for the following reasons:

1. To bring the life and interests of the school more closely into touch with the home life of the pupils and the employments in which they will be engaged after they leave school.

2. To stimulate interest and to impart useful information in agricultural subjects and thus offset to some extent the tendency to leave the farm for the city.

3. To develop at an early age habits of industry, respect for labor, and a love for productive and constructive work; to promote a spirit of independent investigation in other branches of study.

4. To give facility in the handling of tools and in the practice of garden craft; to provide healthful exercise for body and mind; to afford to the pupil an opportunity to direct his activities along useful lines.

5. To encourage careful observation of nature, thus enabling the pupil to understand his or her environment and to appreciate more fully the beautiful in nature.

6. To promote the desire to improve home surroundings and to train boys and girls to do such work with efficiency.

7. To promote the qualities that make for good citizenship, such as the responsibility of ownership, respect for public property, consideration for the rights of others and the principle of co-operation in seeking the common good.

The work is carried into effect through the encouragement of school gardens, home gardening schemes, experimental and observation plots on the school grounds, children's progress clubs, and other practical measures.

The work is under the general supervision of the *Director of Elementary Agricultural Education* appointed by the Minister of Education. He arranges for experiments and demonstrations, and assists in carrying out the work by supplying charts, instruction sheets, bulletins, leaflets for pupils, material for sowing, etc. The work of inspection and supervision is under his charge, assisted by Inspectors and District Agricultural Representatives.

The work in schools will be taken up in a practical way under teachers (1) holding special certificates in Elementary Agriculture and Horticulture or (2) teachers competent but not specially certificated. Teachers receive the special certificates upon satisfactory completion of (1) a ten weeks' spring course at the Ontario Agricultural College; (2) two summer sessions at the College and a directed winter's reading course; or (3) a course in Agriculture at a High School, followed by a further course at the Normal School and one summer session at the Ontario Agricultural College.

When the work is undertaken in any school it is necessary for the Board of Trustees to arrange for its introduction and support, thus sharing with the teacher an effort to insure success.

The work is to be conducted in school grounds, as long as pupils are not deprived of playground accommodation. The garden plots must be protected from injury by dogs, poultry or stray cattle; otherwise the grant will be withheld. No text-book is prescribed, but James' "Agriculture", also the Agriculture Department's bulletins are recommended as the teacher's guide.

The Education Department makes an initial grant up to $50, and an annual grant of $30, when the work is carried on throughout the year, to help in purchasing and preparing extra land or to provide tools, seeds, etc. The school board must expend an equal amount. Teachers receive $30 for conducting the work satisfactorily from January to December, or $15 from January to the summer holidays, and $12 for the teacher who completes the year. For 1911, the total grants reached the sum of $2,340.

IN CONNECTION WITH THE EXPERIMENTAL UNION.

In the Schools' Division of the Experimental Union, (an organization comprising nearly 5000 farmers associated for the conducting of experiments in crop growing, with the Agricultural College, at Guelph as headquarters), schools are supplied with flower and vegetable seeds, the seeds of farm crops, tree seeds, vines, bulbs, shrubs and tree seedlings, as well as instruction sheets, booklets on gardening, government publications and agricultural text books. The forest tree seedlings, agricultural seeds, government publications, and instruction sheets are furnished free; charges are made for the other material. Several hundred schools have taken advantage of the offers made during the year, and have thus taken some steps towards arousing an interest in agriculture and horticulture amongst their pupils.

One hundred and fifty schools purchased seed supplies for school gardening purposes in addition to sixteen other schools that took only free material. Of the work done reports have been received from thirty-eight. Twenty-two report taking up the work in school gardens and sixteen report home gardens. As it is in no sense obligatory for teachers to report, we are unable to say how many more of the one hundred and sixty-six schools co-operating carried on the work for which they obtained supplies.

In all, ninety-two schools are known to have taken some active part in this phase of the school work during the season of 1911. Undoubtedly the number would be much larger if all were known. Perhaps the number would be nearer three hundred than one hundred if there were better means of receiving reports from all the schools that interest themselves in the work. Hereafter, suitable plans will be arranged for keeping definite records of all schools that carry out schemes of instruction in agriculture and horticulture through school or home gardening.

Supplies of Materials for Schools.

The work of the Schools Division was commenced in 1909 and was continued in 1911 with some new features added. It now comprises:—

(1) *Seed Packets for children's gardening,* which were sold at 2 cents a packet. In most cases they were used by the children in home gardening rather than in school gardening. With the seeds a circular of instruction was sent out to guide the children and teacher in the practical work. Another circular was specially prepared as a guide to the teacher in taking up lessons in the school based on the work. One hundred and thirty five schools have co-operated in the work. Several thousand children have received the packets.

(2) *School collection of forest seedlings* sent out from the Government forest nursery in Norfolk County. It consisted of 12 White Pine seedlings (2 year stock), 12 Scotch Pine (2 year stock), 12 Norway Spruce (3 or 4 years), 12 Cedars (2 years), with a miscellaneous addition of deciduous tree seedlings.

(37 schools received these collections.)

(3) *Seed Barley for School Experiment in Agriculture.*—In 1909 and 1910 different species were sent to the schools for observation plots. This year packets of specially selected O.A.C. No. 21 Barley were sent out for a little experiment. The work was to plant the seed in $\frac{1}{1000}$ acre plots one week apart, commencing with the earliest possible date of seeding. Comparisons of growth and yield were to be made. When the school was unable to carry out the work the seed was to be used for demonstration purposes. A chart showing the results of this experiment on the Experimental Farm was prepared to accompany the school's work. (200 schools.)

(4) *School Collection of Agricultural Seeds.*—This included samples of different kinds of field crops, such as wheats, corns, clovers and legumes, grasses, flax, buckwheat, etc. The intention was to have schools provided with small plots on the school grounds that would furnish material for practical studies on growth, flowering, seeding, etc. A number of town schools accepted the offer and have made good use of the material. (200 schools.)

(5) *Tulip Bulbs.*—The object was to encourage the improvement of school grounds by the planting of tulips. A special selection of the best known and hardiest varieties of white, red, yellow, and striped tulips was made for this. (10 schools sent orders for these.)

(6) *School Collection of Hardy Climbers.*—This collection, like the tulip bulbs, was arranged to help in improving school grounds throughout the country. It included two Virginia Creepers, two Boston Ivies, two Hardy Climbing Roses, and one shrub Hydrangea. The Virginia Creepers were intended for covering unsightly fences or outbuildings and the roses for adorning the walls. (40 schools secured these.)

(7) *School Collection of Shrubs.*—This collection was arranged for to enable schools to secure first-class shrubs for decorating the school grounds. The shrubs selected were all well adapted to withstand our climate. They consisted of the Flowering Currant, Spirea Van Houtei, Bush Honeysuckle, High Bush Cranberry, Siberian Pea Tree, Syringa or Mock Orange, and a selection of Lilacs. (4 schools ordered these.)

(8) *Weed Seed Collection.*—This collection was sold for 25 cents. The seeds included in it represented those covered in the Seed Control Act of 1905, the sale of which is restricted in seed grain, clover, etc., as well as some of the more common weeds found as common impurities. These collections have been put up specially by the Botanical Department for educational purposes. Teachers have found them useful for reference.

SECTION 2: COMBINED CONSOLIDATION SCHOOLS AND CONTINUATION CLASSES.

Statement of Mr. Joseph H. Smith, Public School Inspector for the County of Wentworth for 40 years.

I have a good knowledge of the condition of the country schools, and also know something of the state of agriculture in the county. I very positively think that the farms are better managed now than they were formerly. There has been very great progress since 1871. I can see very great change in the care of implements and the class of work done on the farms during that period. From this county originated the Farmers' Institutes, which have been a very successful agency for the farmers.

The initiative for the improvement of rural schools does not come from the rural people; it has to be pressed from outside. In every public school in this county we have a good reference library and a good reading library, which is taken advantage of by the country people, who carry books to their homes. Some boys will hurry through work and ask the privilege of reading a good book.

We also have a number of School Gardens started in the county, and these become a very important base for Nature Study. The farmers are slow at theory, but they will get hold of practice quickly. We tried illustration plots alongside the garden plots of the children, but the grain experiments were a failure. The difficulty with the School Gardens is the summer vacation. We have no Household Science or Domestic Science; we tried one experiment and it proved a failure. We teach sewing in a few schools in thickly settled parts which have more than two teachers. The great difficulty is to get enough pupils together to form a good school; in general they will average from 30 to 35, many of them being under 30 and perhaps one or two over 40 pupils.

In 1907 we discussed the question of Consolidated Schools and Continuation Classes and I prepared the following plan:

1. That Advanced English Schools shall be established in rural districts.
2. That township municipalities may be formed into one or more districts.
3. That these districts shall be formed by a committee consisting of the County Judge, P.S. Inspector, the Reeve or Reeves of the Township or Townships interested.
4. That each district shall contain not less than 150 children between 5 and 21 years of age, unless it exceeds 12 square miles.
5. That the management of the schools in the district shall be under a Board of Education of six members elected for three years, two retiring annually.

6. That the schools now in existence shall be continued as primary departments, and that the most central one shall be provided with rooms for continuation classes, or if preferred, a new school building may be erected.

7. That the sections or parts of sections forming the district shall cease to exist as sections, but will become part of the district, and be under the jurisdiction of the Board of Education.

8. That on receipt of a petition signed by 20 ratepayers resident in the township, the P. S. Inspector shall call the committee together, and they shall (1) determine whether the formation of a district is advisable, and (2) fix the boundaries of the same.

9. That a special Legislative grant of $200 shall be given to each district for the encouragement of continuation classes, upon conditions prescribed by the Education Department, and that an equal sum shall be granted by the County Council for each district supporting such a class.

10. That a uniform rate over the entire municipality shall be levied to provide a fixed municipal grant.

11. That the amount required (over and above the grants already given) for the efficient management of these schools shall be borne by the district.

12. That district Boards of Education shall have all the powers vested by law in Boards of Education and Boards of Trustees, and shall have power to provide accommodation for the horses and vehicles of those who come in their own conveyances. They shall also be authorized to provide experimental plots and school gardens for the practical study of Agriculture and kindred subjects.

13. That the course of study shall extend over a period of four years, and embrace the following subjects:—

(1) English, embracing literature, composition, grammar, spelling, derivation of words, and oral reading.
(2) Mathematics.
(3) Science.
(4) Commercial work.
(5) Manual Training.
(6) Domestic Science.

These subjects are to be taught with special reference to farm work and farm life, with special rooms for (5) and (6).

14. That the completed course of study shall cover the ground necessary for matriculation into the Ontario Agricultural College.

15. That an Entrance Examination, to be fixed by the Education Department, shall be required for admission to the continuation classes.

16. That special classes may be formed for the accommodation of winter pupils who shall take the English course (or as much of it as may be determined by this special committee) and such other subjects as they may desire.

17. That this special committee on Entrance work for these winter pupils shall consist of the P.S. Inspector, the Principal of the School and the Chairman of the Board of Education, and shall have the power to fix the course of study and prescribe the terms of admission into this school for said winter pupils.

We would treat Manual Training from a practical point of view; leaving its educational side in abeyance, not bringing that to the front; it would be there all the same, but we would emphasize the practical part. For instance, a farmer wanted to take 24 cattle to feed, and asked his son to prepare a plan of a building in which they could be comfortably housed and fed; the boy would prepare a drawing practically drawn to scale, and also make up cost of same. We tried that in the Macdonald Institute at Guelph. They asked for a problem and I printed that one and we got solutions of that, but all of the answers did not evidence careful thought. Such work as that would have a high educational value The only point is that we do not want to proclaim too much the educational side; they are always looking for the practical part. Then I would like to see them take metal working and wood working, as I believe it would be of great advantage on the farm. I would want a good science room in the school, because I have it in my mind that we could have science men from the Ontario Agricultural College conduct classes every two or three weeks along certain subjects if we had the apparatus.

That is the idea I would have for these schools. The better farming community we have the better this country will be. One of the greatest difficulties will be the expense. I would propose this as a scheme to be started and supported by the people, and to be independent of the local school. I would divide the County into districts; there might be five or six primary schools and one of these advanced schools. The plan is a modification of the present Continuation Classes adapted as near as I could judge to the wants of the rural community. Advanced classes should be organized in rural districts; the schools that now exist should be continued as primary schools, and a central schoolhouse provided with room for Continuation Classes. This is quite radical, but we have to take an extreme view before they take a moderate view. I have prepared the outline pretty carefully considered from every point of view. In this County we would require about 12 or 15 of these, then an instructor in Manual Training and in science could be employed for the whole county, spending a day in each school for certain subjects. The difficulty to-day is very largely that with only three trustees you are practically dealing with one man, the Secretary-Treasurer; if he says so and so, it goes that way, and you find very few trustees who demur to that.

With an advanced school like that for the rural population I would have evening classes, and have a resident teacher for the school gardens. I see no difficulty in having night classes 2 nights a week in summer for those persons who came to winter classes continuously. That would be a good chance to keep up the school garden all summer. In one school the boys and girls actually came through the summer vacation and weeded and watered the garden, and paid a great deal of attention to it, out of the pride they had in it.

If a real good farmer, with exceptional ability in profit-making and care of his place, lived near that Central or Continuation School, and his farm were nominated as an illustration farm for the township, and perhaps put specially under care of men from the Agricultural College who visited it once a month, it might be a good aid for the grown farmers to come up there once a month. We also should have a good science room in the Central School, and we could get every farmer in that neighborhood more or less interested in this work.

SECTION 3: BETTERMENT OF RURAL EDUCATION.

Information obtained from Mr. John Dearness, Professor of Botany and Nature Study in the Normal School, London, formerly Inspector of Public Schools.

How Time is Mis-spent.

Teachers and many other people hardly wait to hear a scheme for the betterment of rural education proposed without interrupting with the remark, "There is not time to teach this and that—the children are overtaxed now with a multiplicity of studies." The truth is that a period of seven to nine years—from 5 or 6 to 13 or 14 years of age—is taken up with the so called High School entrance course. The essentials of that course can be taught in four or five years easily. If a third of the present time was occupied with industrial and outdoor work, the pupils would be profited in body and mind. Nearly two years—quite a year and a half—is practically wasted on spelling. Our slavish devotion to a chaotic and irrational fashion of spelling many words, and the unpedagogical method of teaching spelling in vogue are serious obstacles in the way of making the right use of the school years. There are several other, as obvious, economies of time that might make way for real education.

One obstacle in the way of the advancement of the course we have at heart is the satisfaction of the farmer with a course of education that fits his child for the soft-hand vocations, if it fits him for anything. Many take the ground that the rural schools are all right—that the farmer's child needs as good education (which by the context implies, the same kind of education) as the town child. The three R's, the overcrowded curriculum and the culture bogey will likely continue to be urged against improvement.

Improvements Suggested.

The four agencies—the home, the school, society, and work—as in the past are likely to continue contributing their share to the process of education. The only one of them, however, that is specifically organized for the purpose is the school; it has consequently received an inequitable share of the praise or blame for the general result. Outstanding examples of successful men among the makers of this country and of the neighboring republic have had their success attributed to the cross-roads country school. Who can say how many of them are more greatly indebted to the discipline of "chores" than to the influence of the "little red school house?" Doing things that to the child seem worth while for himself and others, especially when there is an element of his own planning in the doing, is richer educational experience than sitting at a desk absorbing knowledge from books. My observation is unique unless it is generally true that the youth who does not learn to work between the ages of fourteen and eighteen stands little chance to become a successful worker at any time. An uninterrupted course of book-learning up to the eighteenth or later year usually limits its victims to soft-handed vocations.

When the ideal rural school in an agricultural country becomes a reality, taking it for granted that the makers of school laws and regulations have right

views of educational values and intimate knowledge of rural conditions and aspirations, then each of the following causes will have contributed its part.

Rural School Inspection.

Inspectors will be practical experts in elementary education, will have considerable knowledge of agricultural science and be qualified through their knowledge and sympathies to inspire youth with ambition to excel on the farm.

Teachers will be trained so that they can make farm-life the centre of educational activity.

Text-books will be redolent of the atmosphere of Nature and the farm.

Courses of study will require education of the heart and hand as well as of the head, and will attach as much importance to the right study of things and processes as to book-learning.

Let us examine some of these propositions in more detail. I know whereof I speak when I affirm that but few people realize how much good can be done for the schools of a county by an inspector having a reasonably free hand and the ability and determination to use his influence to promote the welfare of his schools. Equally with the teacher's, his qualifications and performance will depend on his training, aims and sympathies. These are naturally affected by the legal requirements for his certificate. What answer is given an applicant for an inspector's certificate who claims to have the highest grade of public school teacher's certificate, several years' successful experience in all departments of public school work, and ability to address acceptably on educational topics an assembly of children or a gathering of their parents?

Refusal.

"Will it help that I have also had successful experience in managing a farm?"

Not in the least.

"If I attended the Agricultural College two or three years and complete a course of studies there, will the certificate be granted?"

No; agriculture is not the kind of culture that counts for the purpose in question.

"If I go to a city University to specialize on Latin and Greek for two or more years and obtain an honor degree in classics, will this experience count?"

Most certainly.

Is this the kind of training that best fits a man for the exceedingly important work of rural school inspection?

Few will deny that Dr. Ryerson's view—requiring candidates for public school inspector's certificates to specialize on efficiency in public school teaching and on public school courses of study—had much to commend it. The man who can render valuable service at a Public School Teachers' Institute and also at a Farmers' Institute ought to make an efficient rural school inspector.

Proper Teacher-Training.

This is at once the most proper and the most difficult requirement. One who can completely manage and teach a large rural school is qualified to teach any

public school. On the academic side he must be trained in the ordinary expressive arts, literature, history, civics, mathematics and in a somewhat practical way in all the sciences that underlie agriculture. In a city Normal School, attended by a couple of hundred students, it would be extremely difficult in an annual term, even with a conservatory for plant studies in the winter and a suitable farm accessible by street railway to give a professional training moderately adequate for efficient rural school teaching. Without a conservatory, without a farm, with but a small proportion of the time of the session for agricultural science, it is simply impossible to prepare High School students entering the Normal School with very limited knowledge of farm science to be efficient rural school teachers. The difficulty is increased by the fact that book-methods of teaching are nearly valueless in teaching science. Teachers who, during their training, have no experience in taking a class of children to the barnyard or grainfield and making the visit educationally valuable are not likely to experiment along those lines in their own schools.

Courses of Study.

There is heard much complaint and much ill-considered criticism of the overcrowding of the public school curriculum. Critics have counted the thirteen subjects prescribed for the youngest grade and quoted the number as though its mention proved that the course must be overcrowded. But they have not named the subject which children of that grade are not capable of learning in some degree, and of which they should not or need not know anything. An active child living on a farm is spontaneously learning facts and acquiring experiences that might be grouped and classified under a score of subject titles. The ground for criticism lies with the method of teaching and quantity of matter taught, rather than with the number of subjects.

The High School entrance has unfortunately become the popular standard of a completed public school course. Now all the essentials of that standard can be learned, have been learned, between the ages of eight and twelve years. The child that attends from five to fourteen has spent half these years in "marking time." Could they not be applied to better purpose?

Then again, successful and happy life on the farm requires that between fourteen and eighteen the youth must learn "the trade." Where else than on the farm can he do that? But at fourteen he (or she) is too young to have properly learned all that the school should teach. He cannot become accustomed to work, and at the same time attend school in a distant town.

SECTION 4; RURAL SCHOOL IMPROVEMENT.

(*A.*) *Information obtained from* Mr. James Smith, *Public School Inspector.*

Mr. Smith is Inspector for Chatham and about half of the county of Kent, and has 66 rural schools in his inspectorate. There are no continuation classes in these rural schools, but they have classes pretty nearly equivalent to the first year of continuation schools.

School Gardens.

There is only one School Garden in operation; the great difficulty has been to get qualified teachers to take charge of them. Mr. Smith thinks it a very important part of education, but there are not a great many teachers qualified to teach. A few come now from the Ontario Agricultural College. A teacher who had experience with a School Garden in her own school days for, say, seven years at a country school, would be far more interested, but Mr. Smith did not think she would have enough technical knowledge to teach Nature Study. If the same courses were continued in the High School, he thought she would, but the practical part of it would be necessary too.

A travelling instructor who would spend even half a day a week or less at rural schools and get the School Garden idea started would be useful. The farmer takes an interest in a School Garden very quickly, and children as they become interested take things home and thus it becomes a part of the school. A Supervisor of School Gardens with Nature Study would get them founded quicker, and he would not be required after they got started.

School Exhibits at Fairs.

Mr. Smith said that that year they were conducting 4 township corn fairs for the school children; the previous year two had been held. The children select and bring the five best ears they can find on their father's farm, and an expert judge judges the corn, the parents of course being present. 12 school sections were represented the previous year at one fair, and there were 55 exhibits; at another, 8 section schools, with 51 exhibits. They were very satisfactory, and very helpful in arousing an interest in the public school. Mr. Smith had thought of having each school select a judging team on corn, but had not been able to carry that out so far.

One of the difficulties in rural schools is irregular attendance. On account of lack of farm help the boys are called out at the age of 11 and 12. Mr. Smith thought some plan should be arranged by which the farmers' boys and girls could be kept at school in the winter time until 16. He thought it would be possible to have something like the travelling dairies where specially qualified teachers could come around during the winter months and take these classes. They might stay for a month in one place. A great deal could be given in a month if the boys kept at school and had some grounding and foundation in botany, chemistry and physics before taking these special classes. That could not be done in a one-room school, but all that would be necessary would be simply one room in addition, and not very much equipment.

Continuation Classes.

The two continuation classes under Mr. Smith's inspectorate have no industrial or technical side at all, and as the schools now are they practically lead to the professions. He thought an alteration in the course of study that would let the continuation classes be occupied part of every day with some study that meant

occupation, activity with the hands, either School Gardening, Manual Training, Domestic Science, or some form of Nature Study based on action, would be very beneficial. Mr. Smith thought such classes could be specially directed to help farmers. That would give some high educational value in training them in observation and thinking and management.

Benefits of Short Courses.

Mr. Smith thought it a good thing for teachers from the Normal School to take short courses at Guelph. If that course is not taken their view regarding rural life is altogether different. It would be a great benefit if all Normal pupils took the course, besides those who got scholarships. He believed all would go if they had a chance, and it would be advantageous af all, particularly those who were going to teach in rural schools, could get the chance.

(*B.*) *Information obtained from* Mr. J. E. Tom, *Public School Inspector, Goderich.*

Special Classes for Backward Pupils.

There should be special classes for boys and girls who do not intend to go to a High School. The full High School course is distasteful to some boys and even girls. They do not see any use in some subjects and may not have the time or ability to keep up with the bright members of the class. In every town there should be a class for such pupils.

Many boys and girls drop out of school before they are fit to pass the High School entrance examination. Pupils of fifteen or sixteen years of age dislike being in the same class with those of ten to thirteen years of age. Much time and money are spent in trying to educate boys who do not appreciate what is being done for them. It would be far better to use this money at a later time in maintaining evening schools which these boys would attend when they had discovered the value of an education.

Evening Classes.

Scores of young men, who now waste their evenings and often their earnings, would attend evening schools properly conducted. The course of study should be practical. An enthusiastic and efficient teacher is necessary. Suitable examinations and diplomas are essential. Everybody desires something to show for his work. Now we spend all our means and energies in helping those who will reach the goal, and do nothing for those who fall out by the way. Is it not reasonable that we should assist the latter?

Fifth Classes in Rural Schools.

The course of study for these classes should be largely technical. Those things which fit the boys and girls to do their life work intelligently and successfully should receive most attention. Subjects relating to the farm and the country life should be given prominence in the teaching and in the examinations. The

very opposite is the case now. The rural population have the power to get what they deserve, but do not use that power. The fifth class (rural) graduation papers are prepared for teachers and the rural fifth class pupils are permitted to use them or do without an examination. While certificates are granted to nearly everything else they are denied to rural graduation students. The classes that should be specially stimulated and encouraged are the most neglected.

The Teacher Problem.

The public school graduation work induces pupils to leave the farm instead of encouraging them to remain in the country. Until agriculturists insist on their rights they are not likely to receive them.

The weed problem in Huron is becoming a serious matter. Teachers might do a great deal to assist the farmers in keeping their lands clean if they possessed the knowledge and willingness to help.

The constant change of teachers in the rural schools causes restlessness, loss of time and interest and produces poorly educated citizens. The majority of teachers now are young, inexperienced and without influence in the community. They do not strengthen and ennoble the character of the pupils as teachers should do. They treat their schools as yearly tenants treat a rented farm.

Out of 134 teachers in West Huron, 59 have begun since midsummer; 4 are men and 55 are women; 70 have changed since January 3rd, 1910. Only 8 out of the 107 rural school teachers were in their present positions three years ago; only 16 out of 107 have five years' experience; one has fifty years. Thirteen men resigned their positions on June 30th, 1910, and four took positions; two of these have no professional certificate. There are 26 men and 108 women at present. 28 of the 107 rural teachers have permanent certificates.

SECTION 5: EDUCATIONAL WORK IN AGRICULTURE IN ESSEX COUNTY AND ESSEX HIGH SCHOOL.

Statement of Mr. A. McKenney, B.S.A., District Representative.

When entering upon my duties, it was understood that the important feature of the work was to organize a class of boys, who would take the prescribed Course in Agriculture.

This course was planned to extend over a period of two years, the work of these two years was supposed to be equal to one year's work at the Ontario Agricultural College. It was hoped that this course would appeal to the boys from he farm who were attending the High School and who would probably return to the farm, or who were planning to attend the Ontario Agricultural College later.

Theoretically, this course looked fine. It was outlined to fit conditions in the county surrounding the High School. The principal of the school, the members of the High School board, and others identified in the movement were quite enthusiastic as to the value of the work prescribed and the probable number of

farmers' sons who would take advantage of it. A vigorous advertising campaign was undertaken through the branch office of the Department of Agriculture. Extension work was carried on throughout the county; judging courses, farmers' clubs, etc., were organized, and through these, the value of agricultural education was emphasized. But after two years' hard work, I regret to say that our general Course in Agriculture has not proved the success which we had hoped for in the beginning. Numerically, we seemed to be doing fairly well, closing last year's work with eight boys taking the work in Agriculture. But of these eight, only three were farmers' sons, the remainder of the class being made up of boys from the town who were only interested in certain phases of the work. Though there were many farmers' sons in the school, nearly every boy was there for the purpose of getting away from the farm, and took no interest in anything pertaining to agriculture. This state of affairs, it seemed to me, did not fulfil the purpose intended. The question which arose was how to interest the farmers' sons in the work we were doing.

One of the most serious drawbacks in connection with the long course work in the High School is that it opens in the middle of September, when every farmer's son is busy at home on the farm, and the only possible students we could hope to get were young boys from 12 to 13 years of age who had just passed the entrance. This shut out dozens of young fellows from 16 years and up who were just beginning to be interested in farm life, and who had quit school before or immediately after passing the entrance examination and were now beginning to feel the need of a better education.

Having sized up the situation, we concluded that our long Course in Agriculture in the High School was not reaching the boys who were most in need of just such instruction as we were prepared to give them. We decided to draft a course which would be particularly adapted to the needs of the young farmers in Essex County. In order to make this fit in with the season in our section, and with the work which we knew must be done before these boys could hope to get away, we advertised a six weeks' Course in Agriculture to begin in January and end about the middle of February, in plenty of time for the spring work, which begins with us often as early as the first week in March.

Upon the day we advertised this course to open, instead of one or two small boys, eighteen young men, ranging from 16 to 25 years of age, appeared, prepared to take up the work.

Many of these young fellows had been away from school for from six to eight years, and had forgotten a great deal of their elementary education, or had never gotten beyond fourth class work in the public school. But all were anxious to learn, and made excellent progress. The nature of the course was about as follows: Arithmetic with a practical bearing on farm problems, Farm Bookkeeping, Live Stock Judging, Seed Judging, Food Requirements of the Soil, Drainage, Identification of Weeds and Injurious Insects, etc. The effort throughout was to make every subject as practical as possible.

The interest was such that at the end of six weeks the members of the class came forward unanimously asking that the course be extended for another two weeks. Owing to the success attained in this winter course, and the evident

value to the young farmers of the county, we have decided so far as our work in the High School is concerned, to concentrate all our efforts in developing this line, which for the County of Essex under the conditions which exist there, seems to be the most satisfactory one to follow. The High School Board have not been slow in seeing the value of this winter course, and have spent a considerable sum of money in fitting up a class room to accommodate the much larger attendance which is expected at this winter short course.

Speaking generally regarding the progress of the experiment in other sections, where the work has been attempted, many of the men have met with similar results in connection with the two years' course in agriculture in the High School. Some I find have abandoned the general course, and are following other lines of work. Others are working along with fairly good success and with a fair attendance.

Whether or not a general Course in Agriculture will ever be an established thing, or whether it would be wiser for those anxious for such a course to attend the Ontario Agricultural College, and there get a better course in half the time for the same money, is something that time will decide. But for a course that touches the boy who is just beginning to farm, and who is at the age to appreciate the work, and yet unable to spare the time or money for a long or short course at an Agricultural College, the High School winter course seems to be the proper thing. It is at his home, it is cheap, and it gives him exactly what he needs, as the instructor is acquainted with his conditions, and has a chance to solve the problems which he is up against.

The extension work, or the work undertaken through the Department of Agriculture, has met with marked success from the very beginning. The work has increased so rapidly in every county where an office has been located as to require the services of two men the entire year. By being on the ground and studying local conditions we have been able to start many lines of work which have proved directly beneficial to the average farmers of the district.

During the winter months, besides the short course in the High School, stock judging classes have been organized in sections devoted to live stock; fruit meetings are arranged for in fruit districts, and as this section is pre-eminently a corn growing one, the Ontario Corn Growers' Association was organized. This association has nearly 1000 members in the counties of Kent and Essex, and last year held an exhibition of corn where over $800 was offered in prizes. Some of the best corn authorities in the United States were present to give the benefit of their experience.

The summer months are spent in learning conditions, carrying on experiments with corn, tobacco, onions, fertilizers, spraying, etc. For instance, in a section where orchards are being neglected, an orchard is taken over, pruned, sprayed and cultivated, and in some cases where a neglected orchard has been brought into bearing by proper treatment, whole neighborhoods have been induced to follow the example.

The method of getting directly in touch with the needs of the farmer, and then applying a remedy, is the secret of success in agricultural educational work. By starting with the parents and giving the children in the rural school a more favorable impression of agriculture in general, by means of school corn fairs, held

in as many rural schools as possible, we hope in time to get a class of pupils in the High School whose ambition will be to return to the farm.

SECTION 6: THE VALUE OF BOTANY TO AGRICULTURE.

Information obtained from Mr. W. T. MacClement, M.A., D.Sc., Professor of Botany, Queen's University, Kingston.

The applied science most important to Canada is Agriculture. A very important part of this industry depends on a knowledge of the conditions of growth of plants of all sorts from bacteria to forest trees. It is necessary to know the extent to which they may be modified by conditions, the essentials of plant breeding, the facts so far as known regarding soil fertility and the extent to which soils can be modified by tillage, drainage, etc. Year by year, in view of the attacks of parasites, a knowledge of the structure of plants in all their parts becomes more essential to the farmer who is to apply fungicides and insecticides intelligently. The important relationship between plant life and insect life, and the life histories of weeds are also valuable information. All these together are largely the content of a college course in modern Botany. Especially valuable is that portion known as Ecology, which deals with plants in their relations to soil, climate, rival plants, insects, parasites, etc. This with its adjuncts—Plant Physiology, Morphology and Anatomy—can be made very useful to agriculture by proper use of economic plants for illustration. Our High School teachers with such botanical training can bring the facts of science close to the lives of their students, who are largely drawn from the farm.

The conservation of our most intelligent and progressive young men as farmers will probably depend on the extent to which agriculture can be made to appeal to them as a scientific calling, and not as merely mechanical labor. Our Agricultural Colleges do this well, but serve thoroughly only their own localities. Many scientific farms are required, to which farmers may go directly to see the application of science to the plant and animal industries. Farmers will seldom study text-books, and often discount statements therein, but what they have seen they believe.

Scientific laboratories are not necessarily an adjunct to a scientific farm, especially when such a farm is located near a University, to the laboratories of which scientific problems way be referred. The ideal condition will be reached when each county High School shall be able to deal with the practical laboratory problems of the County Model or Scientific Farm situated near it. Such a farm, managed as are our Dairy Schools, may well come near to paying its own expenses.

SECTION 7: SUMMARY OF OTHER TESTIMONY AS TO EDUCATION FOR RURAL COMMUNITIES.

A Public School Inspector said that all Normal students and teachers-in-training should take a School Gardening Course at Guelph, particularly those going to rural schools.

Some plans should be arranged to give farmer boys and girls evening classes in winter up to the age of 15.

A travelling School Garden Instructor could do much by spending from half a day a week in a school section.

If farmers' children were kept at home in winter time till they were 15, with some grounding in botany, chemistry and physics, a travelling dairy under specially qualified teachers could take these classes for say a month.

Grain exhibits sent in to Fall Fairs by children have been very popular and successful.

Mr. J. W. Gibson, Science Master at the Normal School, Ottawa, who had had charge of the Macdonald School Gardens of Carleton County for a period, believes that Nature Study work helps children by giving them new interests, which lead them to more enthusiasm in other school work. It quickens their powers. Numbers of teachers had testified to this effect, and the 5 schools in Carleton County where a School Garden had been conducted for 3 years showed a distinct gain by pupils in the entrance examination,—to the extent of about 24%. The time devoted to the subject at the Normal School is much too short to accomplish what should be done in School Garden work. Practical work by children in cultivating soil either at home or in the School Garden will give them scientific knowledge and indirectly arouse new interests, which lead them afterwards to investigate problems in nature study and agriculture.

Many witnesses stated that a different kind of training was needed in rural schools to that required for city children. The trend of the present public school course is to educate away from the farm. As it is very expensive to send children to High Schools at a distance, the course should be carried on as far as possible in the local school, which provides all the schooling that most farm boys get.

Education should give boys an interest in the farm. The present rural schools fail in this, and that is one reason why the boys migrate to the cities.

The rural schools will not be improved until the teachers are better qualified; that is the crux of the problem.

School Gardens should be used from the kindergarten up, to teach children to combine head and hand work.

School Gardening could be taught by enthusiasts as a possible recreation.

The School Garden is an important factor in awakening an interest in farm life and agricultural pursuits.

Secondary agricultural schools, with teachers from agricultural colleges to carry on continuation classes, were suggested as a possibility for country districts.

An agricultural teacher in each county, who could also act as a dispenser of information to farmers, would be valuable. Occasional lectures are also appreciated.

CHAPTER LXVIII: OTHER TESTIMONY AS TO TECHNICAL EDUCATION FOR AGRICULTURE.

SECTION 1: STATEMENT BY Mr. W. C. GOOD, B.A., BRANTFORD.

The most pressing problem which confronts us as farmers is the marked difficulty in securing help. The scarcity of labor is not only in quantity but also in quality. Everywhere the land is crying out for workers but they cannot be got, and high wages, even if the farmer could afford to pay them, will not attract laborers from the cities. In many sections rural depopulation is not only relative but absolute. Truly the fields are white unto the harvest, but the laborers are few.

The condition is acutely distressing, and Technical Education will only partly relieve the situation. In a large measure the relative decadence of agriculture indicated by the relative scarcity of food products (though this scarcity has been much exaggerated in current discussions) is due to the inevitable discrimination against agriculture which is involved in the system of protective tariffs and bounties, and to the monopolising by individuals of land values and public franchises created by the community. The consequent breeding of millionaires with their horde of satellites not only constitutes a burden upon productive society but demoralises public life and corrupts the public taste and ideals, setting up false standards of success and inciting to extravagance in living. Until we have established a greater degree of economic justice than exists at present we cannot, in my judgment, hope for much checking of the city-ward drift. It is true that the increasing prices of food products may have some remedial value, and it is also true that technical education may do something towards reinstating agriculture in its rightful position. With this latter question, I take it, you have especially to deal, and I shall confine what else I have to say to it.

In the first place, I would not like to see any substitution of a technical for a liberal education. We are citizens first, farmers or mechanics secondarily; and education should aim primarily at the development of character. But, although I should regret any further emphasis being placed upon the utilitarian side of education, I am of the opinion that the cause of liberal education will not suffer by the much greater development of technical education.

By technical education I do not refer to manual training schools, which, from an educational point of view, have been so ably and so eloquently advocated by your Chairman, Dr. Robertson, I mean rather the study of the scientific principles underlying the various arts, trades, or occupations. In agriculture we have our agricultural colleges, and a recent extension of their work in the establishment of District Representatives and Agricultural High Schools. In my judgment

this work ought to be greatly extended. Elementary instruction in agriculture, growing out of nature study, should be a conspicuous feature of all rural public school work, and more advanced instruction in the principles of agriculture should be accessible to all young men in the rural districts. The girls, too, ought to be directed into the honorable sphere of domestic art, instead of being left as they are nowadays to drift into the city factory or office. Such a diversion would result in a much needed elevation of home life and consequent improvement of our national spirit.

In conclusion I would commend any efforts to extend and improve technical education provided it were done without injuring the cause of liberal education; and so far as I have been able to judge, the former, rightly conceived and carried out, should subserve rather than militate against the latter. With respect to my own occupation, that of agriculture, technical education will do something to interest our young people in country life and make them more efficient and more intelligent workers. Such a result is worth striving for.

SECTION 2: STATEMENT BY Mr. W. O. SEALY, M.P. FOR WENTWORTH COUNTY.

Those who live in the County would be very much the better for more education to qualify the young people to go into industries and to carry on practical operations. Wentworth County has great resources in the way of agriculture. It is very much in advance of what it was 20 years ago, but it has not been developed to its fullest extent yet. With more improved means, it would make great advance. The present Agricultural College and Farmers' Institutes are doing a splendid work in making two blades of grass grow where one was before, but the grain, after it is grown, is not marketed to the best advantage. The improvement in the last 20 years has been in developing an increased quantity and better quality of crops. While both these could still be improved, the commercial side is most important. The commercial side of agricultural life has not been developed as it should be.

What tends towards the prosperity of the farmers, tends very much towards the prosperity of industries, by creating a larger home market. The County of Wentworth welcomes the expenditure by the Provincial Government, and would also welcome the expenditure by the Dominion Government, not by overlapping, but by extending, enlarging and improving what they are already doing.

There has been a good deal of increased interest in the subject of technical education in the last few years. That has come from the expressed needs of the people themselves; I have not known of any special or particular agitation. The people of Wentworth think there is perhaps more attention given and more expenditure made just at present along the lines of technical education to improve mechanics and that sort of thing, and not so much, in fact barely anything, to make skilled agriculturists; and they think a great improvement and good results for the money expended could be had in improving technical education for agriculturists.

The people commence to realize their needs more than ever before and would be willing to meet a share of the expenditure, and on general principles meet it all from the county standpoint. I think the Canadian people will stand for expenditure along that line, as they will get the advantages of it. I have not heard any discussion as to how the expenses should be borne.

The great need is to give the commercial side of agriculture more attention, and some education along that line would do good. To illustrate, I might relate an instance of the marketing of tobacco grown in Kentucky. 12 years ago the producers were paid for good middle class tobacco about 15 cents a pound, the consumer paying 45 cents a pound for that after being manufactured. From that time the trusts forced the price of tobacco from 15 cents down to 7 cents, and forced the price paid by the consumer up to 70 cents. There did not appear to be any kick from the consumers, but the producers were down to less than the cost of production. They co-operated in a commercial way, and arranged with banking concerns to advance them 6 cents a pound on their products, so that with tobacco at 7 cents the bank had one cent of margin. They warehoused it in the hands of a committee appointed by their association to sell. They had quoted their output to the trusts at 15 cents. The trusts laughed at the idea, and still stood at 7 cents. However, later on it began to dawn on them that they required the tobacco, and they offered 10 cents. The Committee still held for 15 cents. Later on they offered 13 cents. The Committee looked around and found that the Southern Ohio tobacco was not to be compared with theirs, with the result that they raised the price to 20 cents. The trust later on offered 15 cents a pound for it, then 18 cents, but the Committee raised the price to 22 cents, and finally sold it to the trust for 21 cents, thus getting three times the price they did before. I term that the commercial side of agriculture. I will take another case. In 1907 the producer was getting 5 cents for his pork on foot, and the consumer was paying 22 cents for bacon. Two years later, say a year ago this fall, the producer was getting 8½ and 9 cents, and the consumer was getting his bacon for 21 cents. The consumer in this case is not paying any more than he did three years ago, although the producer is getting 3 cents more. The producer has not been getting his fair share; he is not wanting to treat the consumer unfairly, but in marketing he wants to get his fair share of the profit.

I firmly believe that technical education is just as important, just as necessary, and just as profitable if applied along agricultural lines as along mechanical or any other lines, notwithstanding the splendid and important educational work our Agricultural Departments are at present doing.

In applying the same along agricultural lines I would suggest; first that your Commission devise a plan for transmitting agricultural information by chart, tabulated illustrations or otherwise, whereby the agriculturists could get the results of agricultural experiments, etc. at a glance, in a minute, rather than by having to read innumerable pages of "blue book" reports; for time is money to the agriculturists, whether in reading, managing or laboring.

I think technical education along the lines of the commercial side of agriculture, providing for the selling of agricultural products to the best advantage, is most important and necessary, and would add greatly to the profit of the agricultural

business; because to a very large extent agriculture has become a business, an industry, a profession rather than slavish drudgery.

Technical education along the lines of co-operative selling or marketing would be of inestimable value, and technical education along the lines of co-operative packing and transporting to the best and most profitable markets is most important. Fruit, although now most carefully packed, is greatly damaged in transit to the markets, and a direct loss is sustained by the farmer in consequence.

Technical education along the lines of the co-operative fighting of pests, noxious weeds, diseased stock, etc. is also most necessary.

Technical education could be extended by establishing more demonstration farms where not only the technical process of growing the various kinds of crops could be demonstrated, but also the advantages of the various kinds of crops and stock.

Technical methods of producing and testing the various kinds of seeds could be extended.

Technical instruction could be given as to the best methods of preparing produce for market, such as wool, poultry, dairy products, fruit and vegetables, and in fact every kind of agricultural product.

Various Forms of Technical Education Suggested.

Technical education in the frequent daily publication of market reports in order that prices can be more easily compared than at present in the daily newspapers.

Technical education along agricultural lines for the newcomers to Canada, so that their services for themselves or their employers would be rendered much more valuable.

Technical education in preparing and marketing meat, etc., so that the farmers would come directly in contact with the dealers or consumers without their produce having to pass through the interests controlled by the packers, trusts and combines which now make for high cost of living.

Technical education in road-making, whether it be corduroy across the swamps by the new settler, properly drained and graded in the medium districts or high-class drainage crown macadam and oil in the older districts, so that the best markets can be easily reached with the largest loads, least disturbance or damage to the contents, smallest amount of injury to the vehicle, and least wear and tear on the horses.

Technical education as to the many advantages and various applications to numerous purposes to which rural mail delivery may be utilized or made possible.

Technical education *re* crop prospects generally and price reports in convenient and quickly readable form—simplified schedules.

Technical education along electrical lines for local co-operative telephone companies so that the average farmer can keep in repair his own telephone instrument and wires; also the running of motors so that when Hydro Electric Power is supplied to the farmers they can keep in order the lights, motors and machinery, etc.; coupled with co-operative business methods of organizing and running same,

Technical education *re* freight rates, express rates, classification of products, and shipping conditions.

Technical education by correspondence *re* market conditions, prices, transportation rates, and transportation facilities.

Technical education in agricultural observation.

Technical education in expressing one's opinion along agricultural lines, that the farmers' interests may be more effectually advocated and safeguarded before Parliaments, Commissions, in the public press, etc.

Technical education in drainage—a most important factor in farming.

Within a radius of 10 miles of Hamilton there are sufficient apples, pears and other fruits left on the trees and on the ground unpicked and unpacked that annually go to waste to supply the requirements of the whole of Hamilton's 75,000 population during the winter. The same is largely true of vegetables, etc. Cannot the Technical Commission evolve a plan for educating at least a portion of the indifferent city population, to gather these fruits on shares or some other way, so that want and downright hardship and suffering during the winter months would be unknown, or at least greatly modified, besides avoiding this shameful waste of bountiful Providence?

The same is particularly true of grain and other farm products. Educate the farmer to save his "waste", which would make a handsome additional profit to the average producer.

Educate the public to make the tilling of the soil so profitable that the non-prosperous city population will forsake the towns and become prosperous agricultural producers, and in this way solve the most difficult of social problems. —"Back to the farm."

I trust the above may interest you, and that your Commission will evolve a system of technical education therefrom along agricultural lines in addition to mechanical lines that will place Canada, "the leading agricultural country in the world to-day," so far ahead of its present self that not only will our own people become more prosperous, happy and contented, but that the whole world will be attracted to Canada, and that millions more of the best people will flock to our fair Dominion and share our blessings.

SECTION 3: STATEMENT OF Mr. THOMAS McMILLAN, FARMER, CONSTANCE.

The people of Canada, and more particularly of the Province of Ontario, are leaving the farms to such a degree that the greatest problem which presents itself to the people of Canada is that of being able to keep our people on the soil. When we consider the population of Ontario we find that while in the ten years 1891 to 1901 the urban population increased by 14¼%, the rural population actually decreased by 3¾%. Further if we take the municipal returns for the ten years 1899-1909 they show that while the urban population of Ontario increased by 32¾%, the rural population has actually undergone a further reduction of 5½%.

No doubt in some sections of the Province, and notably in this section, there has been an exodus to the new Western Provinces of Canada. But apart from

this cause, it is plain to the close observer that our young people and principally the young men, are not remaining on the soil in as great numbers as is desirable. I believe there is a two-fold reason for this movement.

(1) The parents of our farm children seem to harbor in their minds, and nourish in those of their family, a certain prejudice against the farms. They do not seem to sufficiently realize the favorable conditions (comparatively speaking) surrounding farm life. No doubt in too many of our farm houses in the past, there has been altogether too much drudgery. They have kept at work early and late and impressed their children with little else than continuous labor. I am convinced that with the exception of hay and harvest time, if farmers would more generally adopt the ten-hour system, they would meet with greater success.

Yet, with all this continuous exertion, after meeting the necessary obligations during the year, the margin of profit is too small. Coupled with this experience they do not sufficiently realize the true conditions of city life. They are carried away with its false outward appearances. They do not realize when they send their sons into town to take positions behind the counter, that unless they give truly distinctive service, by the time they are 45 years of age they must give way to younger men. This is a young man's age. They do not realize that a successful professional or business man in the city is a slave. And so with these false notions of city life a certain measure of discontent is nourished in the farm home. The children become impressed with these false ideas, and gradually take on a certain prejudice against the farm.

(2) Then as the result of these conditions, this feeling of change in the minds of our families begins, and the whole trend of our educational system in this Province in the past has tended to deepen rather than dispel that prejudice. True, in the past we have had what we call a continuous system of education, through which our children have been fed in at the bottom and ground out through the top, out through the University, if you will, but the proof of my assertion is: where do we find the graduates of our High Schools, our Colleges, our Universities today? In view of the commanding importance of agriculture in this country, do we find them on the farms? I may say that after having travelled over almost this entire Province upon agricultural work, I can count all the University graduate farmers I have ever met on my fingers. There is a very small percentage even of our ex-students of the High Schools on the farms. A few years ago I received a circular asking me to give a return of the number of ex-students of our High Schools engaged in farming in my locality, and although I carefully scanned the whole circle of my acquaintances, I could only put my finger on a solitary one. Why is this so? Is there no scope for educated ability on the farms? No truly educated man will say so. There is no other field of life which gives such a wide scope; and yet the farms of Canada cry out in vain for the service of educated ability. Is it because there is not sufficient remuneration for the service of educated ability on the farm? If this is so, it is the strongest reason why the service of such men should be enlisted so that the pursuit of agriculture might come into the possession of its own in this country, and that it should no longer be burdened for the benefit of any other industry in the land. If the pursuit of agriculture is a desirable one in which to engage the energies of life,

and if it is a matter of commanding importance that our people be more largely retained upon the soil, why should our children not be taught something of the desirability of an agricultural life in the public school-room?

I am not going to criticise our Public School readers further than to say that after carefully scanning them, I have failed to find one solitary sentence therein which will enable the youth of this land to realize that it is in the highest interests of this country and in the best interest of the individual that our people should expend the energies of life more largely upon the soil. Our Public School teachers should be equipped with this knowledge, that they might be able to impart it to the children. Yet after having conversed with many of our teachers upon this question, I have with a very few exceptions received the one general answer, that in the whole course of their training for this important service, they have scarcely ever heard a word which would lead them to realize the great significance of such desirable information. When I demand that this information be given to the youth of our land, I speak from a personal experience which causes me to say that when I was a boy I was carried away with the glitter of city life, considered farming a drudgery, and never intended to farm. When I was eighteen years of age (through ill-health) I had the privilege of sojourning for five or six weeks in the city of Glasgow, where I obtained such an insight into the realities of city life that from that day I longed to spend my life upon the farm.

Apart from the information outlined above, our children should be taught something of insect and bird life, by asking them to gather and take to the school room the insects they might catch by the wayside. They should also be made to collect the common weeds and weed-seeds which may be obtained by the wayside and on the farms. Such a study would deeply interest and instruct the parents as well. In some such way the children of the land cultivate and retain the deeply observant faculties of early youth, which through life are such a permanent asset.

To-day every facility is given for the training of professional men; yet only 4% of our children enter the professions. Our school system is conducted for the special benefit of this 4%, and those are non-producers. The other 96% are offered the same training, with the result that they leave the public school in hordes just as soon as the law will let them. Herein we are violating one of the most sacred principles of our democracy—the greatest good to the greatest number. What we want in the country is a national system of technical education in which there is ample provision for agriculture.

SECTION 4: PRIZE FARM COMPETITION.

Statement of Mr. H. B. Cowan, Managing Director of "Farm and Dairy", Peterboro.

The Prize Farms Competition recently held throughout Ontario brought out the fact that in all portions of the Province there are farmers who have become wealthy through following the best methods of farm practice, while neighbors in their sections have in some cases failed with their farm operations, and in others not made much more than a fair living. I believe that the holding of competitions

of this nature will do much to educate farmers throughout the country to the possibilities of farming, and lead them to adopt more modern methods. We have found through holding this competition that the neighbors of the successful farmers have watched the competing farms carefully, and that they have in many instances imitated the most successful practices on their farms.

Furthermore we have found that the competing farmers, as soon as they enter the competition, cease to compare their farms with those of their neighbors, and immediately begin comparing them with the best farms throughout the Province, thus broadening their outlook. In some cases, these farmers have visited other competing farms with the object of learning from them and improving their own farms. Thus, all these competing farms have become practically model farms for their sections.

I believe that if some of these successful farmers could be induced to act as Farmers' Institute speakers, and address meetings throughout the Province, much good would result. The publishing, in Government reports and otherwise, of complete descriptions of the farms would also be very helpful.

SECTION 5: SUMMARY OF MUCH OTHER TESTIMONY.

Mr. Wm. H. Bunting, of St. Catharines, stated that Technical Education was very necessary in the fruit industry. The course of instruction should include entomology, chemistry, physics, etc. Research work or an example orchard maintained by the Government would be a protection and incentive.

Co-operation in selling produce had proved the salvation of the fruit industry.

Mr. Nelson Monteith, of Stratford, stated that the rural population is decreasing with the greater use of machinery, which tends towards extensive rather than intensive farming. He obtains permanency of help by housing and providing steady work. The long hours, laborious work and few attractions tend to drive help away from farms. Shortage in farm help might be overcome by the co-operation of farmers in supplying good housing conditions and steady work. Unless education comes in to give people a greater love for this calling, the tendency will be more than ever way from the land.

Mr. Richard A. Penhill, a farmer living about 3 miles out of St. Thomas, has 100 acres and follows dairy farming and fruit. He won 1st place in a competition for good farming in the previous year. His gross revenue is more than twice what it was 20 years ago, due to increase in the variety of the products and improved cultivation, and the farm is worth double what it was then. There is a great deal of other land just as good and under the same climatic conditions. He has no better market facilities than anyone else near a city.

Mr. Penhill said he had no early training except what he learned from experience, but that such training would have helped him materially. He had derived benefit from one or two Farmers' Institute meetings every year. He would be willing to have his farm used as an illustration farm for 2 years if he were recompensed for his time and expense, and he thought it would help others who do not get as good crops or profits to adopt better methods. With sufficient labor

he could produce three times the amount and could double the present production in 10 years.

Mr. William Thompson, on the staff of the "Farmers' Advocate," London, said that the Public School course does not lead towards farming. Rural education should be adapted to country life. The rural school population is diminishing in the numbers and age of pupils. The witness had been on the staff of the "Farmers' Advocate" for 15 years. Progress had been made generally, but there was still room for improvement in production. The lack of help and exodus to the cities and the west were a serious problem. Farmers' Institutes had proved of great benefit, and the Ontario Agricultural College, Experimental Union and visits had produced good results, but farmers are rather apt to look upon all these things as beyond their means. Well managed farms in the neighbourhood, with the accounts published to show profits, would be helpful.

It is difficult to secure pupils for the full agricultural course in the High School; short courses and demonstration work have proved more successful.

The view was generally held that Technical Education would be of benefit to the rural population, both in enabling the farmers to work their farms to better advantage, and in awakening an interest in country life and a taste for agricultural pursuits among the young people in rural districts, which would induce them to remain on the farm. If farming were made more attractive and profitable, labor would become more plentiful, and both farmers and employees would benefit.

It was felt that the education given in the rural schools does not meet the needs of agriculture, and tends to train children away from the farm.

Another reason given for the depopulation of rural districts was the increased use of machinery, which tends towards extensive rather than intensive farming.

The greater attractions of the cities, and the lonesomeness of country life, were also cited as causes of the drift of young people from the country to the towns.

There was a general agreement that there had been a great improvement in farming in the last 15 or 20 years, but that there was still much to be done. The Ontario Agricultural College had contributed largely to the improvement effected. Fairs, Farmers' Institutes, the Experimental Union, and visits from experts, have all proved most beneficial.

The land generally has increased in value. Farmers could almost double their production if labor were available, but it is difficult to get and of poor quality. Weeds are prevalent and in some districts are becoming worse.

Farmers would welcome an opportunity of being better trained for practical work. The question is one of national importance, and should be taken up by the Dominion Government.

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MANITOBA.

CHAPTER LXIX: AS TO ORGANIZATION OF EDUCATION.

Information obtained from Mr. Robert Fletcher, B.A., *Deputy Minister of Education, and* Dr. W. A. McIntyre, *Principal of the Normal School at Winnipeg.*

The Department of Education is organized under a Minister of Education. He is assisted by a Deputy Minister and office staff, and an Advisory Board representing the various educational interests of the Province. Teachers are trained at the Provincial Normal and Model Schools, situated at Winnipeg, and also at the Brandon and Winnipeg Training Schools. In addition to the regular staff of School Inspectors there are organizers of Schools among foreign-speaking peoples.

The Department appoints and pays the salaries of Inspectors. Each has a definite area, reports in a general way to the Secretary-Treasurer of the School District after inspecting the Schools, and sends a duplicate of his Report to the Department. In 1910 the number of school districts was 1551, with a total school population of 93,296. The total number of pupils registered was 76,247, with an average attendance of 57,55. The enrolment in the different grades was as follows:—Grade I, 21,100; II, 9,710; III, 9,099; IV, 9,396; V, 7,263; VI, 5,402; VII, 3,625; VIII, 4,999; over VIII, 5,653. The number of teachers was 2,774, of whom 621 were males.

There were in 1910, in addition to the public schools, 6 Collegiate Institutes, 15 High Schools, 49 Intermediate Departments and 39 Secondary Schools.

General and Special Grants.

The legislative grant to schools was $296,116, and the amount raised by municipal taxation was $1,682,239. The Department expended for training schools, inspection, examinations, free text-books, office expenses, advisory board, etc. a total of $454,618; this includes the legislative grant mentioned, also $20,000 to the Manitoba University.

The school grant is increasing rapidly, chiefly because of the increase in the number of school departments and of Consolidated Schools.

The general grant is based on 65 cents per day per school for the maximum of 200 days. If the average attendance falls below 40%, 10% of the grant is deducted; if it falls below 30%, 20% is deducted. The enrolment has no effect on the grant; the enrolment may be only one or two scholars.

There is a fixed grant of $250 for Consolidated Schools, no matter how many schools are in the consolidation. Special grants are given for additional expenses of these schools, and 25% of the cost of transportation. The money can be applied as the local people see fit; usually it is applied to the purchase of vans.

The Government grants 50% of the amount spent on the equipment for Manual Training and Domestic Science, with a maximum amount of $250 for any one department. The teachers of these subjects are considered the same as ordinary departmental teachers for the grant of 65 cents per day. There is a bonus of $25 to teachers who do such work as school gardening, if in the opinion of the Inspector it entitles them to special recognition. Teachers in third-class scholarship work in elementary science have to keep records of observation of a certain number of birds and weeds in their locality. In the second year of that work, in connection with the examination in botany, 10 weeds of the locality are put up, and candidates are given a certain time in which to name them. That is before they go to the Normal School.

Secondary School Grants and Inspection.

Grants to High Schools and all Secondary Schools are on a special basis, having relation to their size and variety of work. There are four classes of Secondary Schools, with a special basis for each. In the lower class (the Intermediate) it is a straight grant of $250 a year to local authorities, in addition to the 65 cents per day; but with a proviso that in order to earn the grant a certain sum must be spent annually on equipment, which is one of the features of the grant to Secondary Schools.

There is no Inspector giving his whole time to High Schools; but there is a Commissioner of Collegiate Institutes; and usually in the spring a man from the Normal School, if one can be spared, inspects the High Schools. If he should find any deficiency in the equipment or staff he could practically withhold the grant. Under the Act and Regulations the Department holds in its hands the question of equipment up to its standard.

Teacher-Training.

The Department entirely maintains and controls the Normal School for the training of teachers. The regulations required that teachers shall have received Normal training; but under revised regulations the Department may issue permits where qualified teachers cannot be secured, where districts certify that they have advertised and cannot get qualified teachers. The Department does not pay any expenses of pupils attending the Normal School, but charges a fee of $10 for the third-class session and $25 for the second-class session.

There is no provision in Manitoba for training Manual Training teachers, but certificates from institutions in good standing are recognized.

A very small grant is given to any recognized evening school work carried on under the school authorities, each evening session being treated as a half day, and the grant paid according to the regular school basis.

Agricultural Education for Teachers.

The Education Department has no control over the Agricultural College, which comes under the Department of Agriculture. The giving of short courses to teachers is done on mutual arrangement between the Department of Education and the Faculty of the College. It is compulsory that teachers in the second class go to the Agricultural College for one month, paying their own board; but as there is provision for a $25 bonus, any teacher may recoup herself the first year, and in subsequent years can help herself further. The time spent at the Agricultural College is additional to that spent at the Normal School. This is the first year the graduates from the Normal School have had an opportunity of doing that work, and so far not more than 10 have been recommended for the grant. They get Elementary Science for a month and Domestic Science and School Garden work. As students in the Normal School they have Nature Study and special work along that line for their second-class professional work as prescribed by the Department. The Department would like to have the teacher spend longer than a month at the Agricultural College.

Experience and Endeavor.

A teacher who gets a certificate good for three years is better qualified in the third year to teach than she was the first year, but the reason her certificate is not valid after the third year is that, if she does not make progress in her academic standing by the end of three years, the probability is that she is going back, and if allowed to go on teaching it would amount in the long run to all the teachers taking junior standing only, whereas the Department wants to encourage the higher class teachers. If the law allowed third class standing to be granted indefinitely a great many might be content to remain teachers for all time with small preparation. The Advisory Board, however, thinks that as rapidly as possible the teachers should have the best preparation, so they say, "We will give you a year and a half to earn a little money by teaching, and then you may come back for a higher certificate.

Home Work and Nature Study in Normal School.

The Normal School does nothing in the way of Domestic Science. If the students get that in the Public or High Schools before they come, well and good. For third class teachers there is work in plasticine and clay, paper cutting and weaving, so that they can carry it on in the country schools. All the men students do enough work in Manual Training to understand the movement. More time is put on Nature Study than any other branch in the Normal School. The first idea of the teacher of Nature Study is to develop the eye by directing pupils to observe the trees; then they bring an animal such as a snake, a frog, or a gopher, and are trained to tell what they see. The result is they are led on in their studies. There is no attempt to teach scientific biology or zoology, but they are aided, just as little children would be, by observation and reflection. The material in the locality is used. Those teachers who have been thus trained, would be prepared to teach

lessons on the germination of grains and the quality of plants. Not much has been done in seeds, soils, etc., as that work is taken up at the Agricultural College.

Domestic Science Training Desirable.

It would be better for the school efficiency of the whole Province, in the opinion of Principal McIntyre, if teachers in the Normal Schools were given more Domestic Science, so that they could teach the children. Then those who would come later on to the Normal School would thus be better prepared to take up those subjects. There is so much to do, however, to meet the needs of the rural schools, that that work had not been attempted yet. The Normal Course is not long enough. If money were available, travelling instructors could go to a country school half a day a week, which would be a very great advantage for the teaching of Nature Study, School Gardens and Domestic Science. What a one-roomed rural school could do with Domestic Science would have to be learned by experiments.

In connection with the Normal School there is a Model School to illustrate how the activities of the school might be related to society. There are visits by classes to farms and industries, the object being to develop an attitude towards society. This is begun with little children when they are six years of age, but Normal Students also are sent around to visit the industries of the cities, so that they may be broader-minded.

Dr. McIntyre supplemented his evidence before the Commission with the following suggestions:—

(1) That in rural districts wherever possible, supervision take the place of inspection, each supervisor being a travelling principal for his municipality, responsible not only for school organization and management, but the recognized authority on architecture, school equipment, sanitation and the like, and at the same time supervising such movements as School Gardening, Manual Training and playground activities.

(2) That care be taken to restrict vocational training to adolescents and adults. While educational handwork is suitable for pupils in the elementary grades, it must not be confused with vocational training. "Childhood must ripen in children." It is impossible for a child to understand occupations in a comprehensive way if he simply makes himself proficient in some minor details so that he can receive money for his labor, and he is likely thus to condemn himself for all time to low-grade industry. Intelligence is the necessary requisite to and accompaniment of vocational training.

(3) That in elementary schools much can be done in an indirect way to develop a right attitude towards industrial and social life. By visitation of industries, the making of collections, by reading and otherwise, children may be led to understand and sympathise with all the occupations of a community—how each member of the social organism is related to all, and how the welfare of all is bound up in the efficiency of each. One of the most helpful directions on the program of studies is that which enjoins teachers to give lessons on industrial and social life; and the most helpful work, in ministering to the social efficiency, has been the visits by pupils to farms and to industrial institutions of the city.

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CHAPTER LXX: AS TO EDUCATION IN WINNIPEG.

SECTION 1: INFORMATION OBTAINED FROM Dr. DANIEL McINTYRE, SUPERVISOR OF SCHOOLS.

Winnipeg has over 14,000 children on the roll and has 32 school buildings. Compulsory education is not enforced. There is not more tendency on the part of the foreign population to evade attendance at school, than any other classes of the community.

In 1910, evening classes were held for general subjects only, similar to the subjects taken in the day schools; and outside of classes in Domestic Science for girls on the north side, only one attempt was made to give anything that might be called industrial education; that was a class in machinery and mechanical drawing 4 years before. That class was not repeated in subsequent years because it was found that there was no demand for it, and it was not well attended.

Educational Handwork.

The educational handwork in the schools is organized with the idea that the powers trained there will be valuable in industrial occupations; but there is no instruction given with the expectation that the pupil is going to pursue a particular occupation in life. In this work the aim is not to make carpenters, although the boys get facilities that would make it easier for them to become good workmen. That branch of school work is evidently beneficial as mental and intellectual education, and the general testimony of teachers is that boys are mentally quickened by it, and that the pride taken in doing something and doing it well is transferred to those academic subjects in which at the outset the boy may be dull. The handwork instruction is a good basis for education in other branches, even for professional life.

Hand-and-eye training is begun through the bodily activities in all the classes, beginning in the first grade, as far as the work suits the pupils. Work in plasticine is general, and such work as basketry, clay modeling and wood carving are also carried on. These four branches, as well as thin woodwork, are given in the first four grades. Bench work begins in the fifth grade and is continued for four years, each student taking one period a week, those in the morning getting three hours and those in the afternoon two and a half hours. Boys in grades 5, 6, 7, and 8 get bench work; girls in 5, 6, and 7 get sewing, and in grade 8 get Domestic Science.

The bench work has not hindered children in other studies; in fact the majority do their other school work better for the quickening influence of the hand-work.

Whatever has come from it in that respect is entirely beneficial, plus the benefits of the handwork itself.

Hand-and-eye training began ten years ago with bench work in grade 5, and during the past 5 years there has been a great expansion downward. Undoubtedly such work would be valuable if extended upwards into the Secondary Schools—not necessarily as wood-work, for Dr. McIntyre would prefer giving the last year of work in another material if there were facilities for it. There would be again to Secondary Education by the introduction of some form of activity, for boys get tired of or stale from strictly academic work. The appeal that would be made by work with machinery would keep those boys in school; they would get the advantage at the same time of the training the Secondary School offers, for general educational purposes—which would be a great gain; and in addition they would get whatever specific training could be given boys through the hand-work. The Secondary School would thus afford an opportunity of directing the minds of many boys to producing and constructing occupations, if there were facilities for laying a general foundation for training for any special line of work.

What After 14?

There is a great temptation in western cities for boys to get out and earn money as office boys and messengers, and in the lower commercial positions, which are paid liberally. The portion of time devoted to hand-work in the Secondary School would depend on the age of the boy and the idea he had of the occupation he meant to go into. For many boys half the school time would not be too much, particularly to those looking forward to industrial occupation. Boys preparing for an Arts course would be benefited by having some part in such work; those looking forward to commercial work might be very definitely prepared during part of their time for that particular work.

In the commercial course a third of the time is now given to shorthand, typewriting and book-keeping, the arithmetic being rather a subject of general education, the same as is taken in the University or teachers' course, perhaps with a more particular commercial cast to it.

For Those Who Have Gone to Work.

There is a general feeling among employers of labor that what is called "Technical Education" should be given in the schools, but there is not a very clear idea as to what definite work the school can do. The half-time plan depends on the attitude of the employer towards the shifting of the employees. Very important work, however, could be done by a technical school in organizing classes for evening instruction of men engaged in occupations during the day.

Young lads leave school at about 14, and undoubtedly lose by dropping out of the habit of study, for knowledge that is not used evaporates very rapidly, and in many occupations boys have no occasion to use this knowledge. Although there is an age limit for boys working in factories, the law does not prevent them from going into offices as low as 14. If the law says a boy shall not work in a factory under 14, there would be advantage in requiring a boy working in a factory

under 18 to attend school a certain number of hours a week. That plan would enable him to retain, and make his own, the education that he had received up to that stage. A few hours a week would not greatly advance him, but it would save him from forgetting. If he went to a school that had special facilities for giving education along the lines of his daily work in the factory, while it would perhaps make him a more effective part of the productive machinery of the country, it would not be so good for the boy as a whole as if he were also required to extend his general education. It seemed to Dr. McIntyre that it would be a great hardship to require attendance all day at school above 14, but the situation would be fairly well met by evening instruction beyond that age, if all the boys could be kept in school until 14. He thought public opinion in Winnipeg would have to be educated before a law could be enacted requiring boys working in factories to go to school until 18 years of age, for the Canadian people were not ready for regulations that intrude into what many of them consider their own personal and family affairs.

He thought a fair proportion would take advantage of good opportunities for night classes without compulsion, although there would have to be an educational campaign to make these classes effective. The agencies influencing public opinion would have to set themselves definitely to work to get the young people to see the advantageous use of their leisure time in order to ensure success in life and their own development. Agencies such as the Y.M.C.A. and the various churches should be interested in educating the heads of families to influence the directions in which their children spend their leisure time, so that they could be made to understand the importance of that time and its bearing on future progress.

Further developments in Domestic Science and Manual Training are hoped for. The work done in Nature Study and School Gardens in the outlying schools has been very satisfactory.

TWO NEW TECHNICAL HIGH SCHOOLS.

Winnipeg's Forward Movement.

Before the present stage was reached in Winnipeg regarding technical education, Dr. McIntyre said, there was considerable seed sowing, thinking and planning; but the question of erecting two buildings was settled practically without debate, for the opinion had been steadily growing in the minds of the Board that they must meet the demands of the young people for better training. Officials were sent to investigate what is being done in eastern cities as well as in the Middle States, and the whole situation was surveyed, beginning at Minneapolis and taking in Menomonie, Wis., St. Louis, Mo., Washington, D.C., New York, etc. Their report was considered in relation to conditions in Winnipeg, and in full discussion matters were crystallised as at present planned, it having been decided to put a school at each end of the city. When the educational authorities decided on action, the citizens practically unanimously agreed to it. There was no word of criticism; money was voted with practically no opposition, only about 72 adverse votes being recorded to the by-law for money for the construction of the schools.

It is estimated that when the two Technical High Schools are equipped they will cost $700,000, the whole amount being raised by the City of Winnipeg, no special grant coming from Provincial sources for the buildings. It has been intimated that liberal support will be given towards the maintenance of technical education when organized, but this has not been a great factor with the Winnipeg Board in its decision to go on with the work.

In arranging for two new Technical Schools it was proposed to have the course flexible enough to meet the requirements of young people who are going into commercial, professional and industrial work; those who on account of their want of interest or of mental ability never reach High School, though of High School age; and those engaged in occupations who have to be provided for in the evenings.

Those who are going into professional work would have a certain amount of Manual Training, though emphasis is laid on the academic work.

Those going into industrial and commercial work would have certain manual training subjects, also such specialized work as they were able to take, coupled with academic work.

Kinds of Work and Teachers.

The industrial lines that seemed feasible were advanced woodwork, machine shop work in iron and forging, electrical work and some work in plumbing. Bricklaying and printing had been discussed, without a definite conclusion being reached. There would also be a regular class for those who had reached High School age, without passing the examination.

It was planned to recruit the teaching staff from foremen of industries, because for real practical work, shop-trained men with aptitude for teaching are required. These would work under the direction of a man at the head of affairs who would be a teacher first and director afterwards.

In the Manual Training classes the staff had been recruited from men who were in the first place mechanics with some aptitude for teaching; they were giving very excellent service, and had been able to assist the men who were teachers first and manual training men afterwards, and who had not any very thorough knowledge of the principles of the craft.

For the evening classes the services of perhaps 20 men would be engaged—men whom the School Board could not hire at all if their whole time were asked for. This would be one way of convincing the lads that the classes would be worth while, and it would give them confidence in the applicability of what they were learning, to the work they were doing in the daytime. If practical men were not in charge of the classes the boys would not come.

These schools, which have now been opened, provide a comprehensive and complete scheme of Scientific and Technical or Industrial Education for students above the ordinary school age who are able to continue their education with a view to special preparation before entering the University, manufacturing works, or commencing a professional career; the aim being to provide a broad scientific or industrial foundation and to enable students to acquire habits of reasoning, standards of accuracy, and increased ambition.

Courses of Instruction.

Courses are laid out with the object of training for definite occupations; but students may, by arrangement, take a mixed course if such will better suit their particular requirements, and can be worked by the time-table.

The first year's course is of a preliminary nature, and is for students whose previous training is not sufficient to enable them to take up the more advanced work of the course laid out for a definite occupation; it also affords an opportunity to determine the student's aptitude and abilities, thus rendering it possible to commence the second year's work as a training for the selected occupation.

Students who desire to be trained for a definite occupation and have a sufficient knowledge of the subjects of the first year's course can, by arrangement, omit that course.

Wherever there is a sufficient demand, part-time courses will be arranged to meet the requirements of those who are already engaged in some trade or profession and are free to attend a certain number of hours per week.

First Year's Course:—This will include such subjects as:—English, Commercial Geography; Elementary Book-keeping; Practical Arithmetic; Simple Algebra and Mensuration; Geometrical and Mechanical Drawing; General Elementary Science, and practical work in the Laboratories and Workshops.

Second and Third Years' Course:—The subjects are grouped into courses under:—Architecture and Building; Electrical Work; Machine Work; Chemical Industries, and Commercial Work. The courses have been carefully arranged by experienced practical teachers, fully acquainted with the requirements of the various occupations and knowing well what subjects of study are necessary in the best interest of students who have the desire to achieve success in their chosen occupation.

Domestic Section.

Special courses in Domestic Science and Art are organized for girls.

The courses will include such subjects as:—Household Arithmetic and Accounts; Needlework and Millinery; Dressmaking; Cooking; Laundry and Household Work; Domestic Hygiene; Music and Physical Training.

All students will take the same course for the first year, after which certain subjects can be discontinued and more time devoted to such subjects as are necessary to meet their particular needs.

Night Classes.

From the time-table issued Sept. 30, 1912, we quote the following, which indicates the character and arrangement of the technical classes conducted:—

MONDAY	TUESDAY
Carpentry and Joinery.	Building Construction and Drawing.
Geometry.	General Woodwork.
Practical Mathematics.	Patternmaking and Turning.
Bookkeeping.	Machine Drawing.
Typewriting.	Calculations for Engineers.
Cooking.	General Electricity.
	Plain Needlework.
	Millinery.
	Masonry.

WEDNESDAY	THURSDAY
Practical Carpentry and Joinery.	Building Construction and Architectural Design.
Structural Design.	General Woodwork.
Calculations for Builders.	Machine Design.
Electrical Mathematics.	Plain Needlework.
Machine Drawing.	Millinery.
Machine Design.	Masonry.
House Wiring (Electrical).	Bookkeeping.
Bookkeeping.	Shorthand and Typewriting.
Shorthand and Typewriting.	
Dressmaking.	
Cooking.	

SECTION 2: INFORMATION OBTAINED FROM Mr. W. J. WARTERS, SUPERINTENDENT OF MANUAL TRAINING.

Hand and Eye Training and Manual Training.

There are 2500 children in grade 1 taking plasticine, 2000 children taking basketry, 1000 children taking clay modeling and wood-carving, and 700 taking light wood-work. Under the present arrangement boys are being taken into ordinary Manual Training rooms even from grade 1, 2 and 3, if they are big enough. The boys who have had previous hand-and-eye training are very much better fitted to do the Manual Training work. The pupils' work and progress are different now from what they were when they had the Manual Training only in the upper grades. It is quite evident in those who have gone from grade 4 to 5, that the work they have done in the lower grades has benefited them wonderfully for the other work. Those pupils would also be decidedly better qualified for what we might call technical work in the High School, for they have more idea of design and form, more skill in their hands, more power to manage tools.

If lads were admitted to the Technical High School say at the age of 15 or 16 without previously having had Manual Training, there would be very little progress; they would not learn nearly as much in the Technical High School as they would if they had a Manual Training foundation. If an effective High School were provided and a system were put on its merits for children with no previous Manual Training, Supervisor Warters did not think the results would show up with advantage as far as the children were concerned or give any scheme of technical education a fair chance to be judged; hence before any scheme of instruction in the Technical High Schools is provided for, he would think it necessary for the children to have a course in Manual Training. At the age of 9 or 10 they can learn things that are necessary very much more readily, are more willing to follow operations and can be trained to accuracy very much better than later. The boys who had had Manual Training would proceed very much faster in the Technical High Schools.

Manual Training in Winnipeg is taken differently from the usual way. There is no specific course, and every teacher is supposed to suit the work to the needs

of the boy. The teacher has to be a student of the boy, and judge of his ability and capability in the use of tools, and fit the model to the highest ability that the boy possesses. Mr. Warters thought a boy should make or do work up to his highest ability; that is why basketry is taught in grade 2; because children in that grade could make baskets, therefore they should be doing that work. At present a test is being made whether some simple raffia work cannot be done in grade 1. He had no fear of a tendency to encourage the brighter boys and neglect those who need great encouragement in order to bring out their native talents, because he insisted on the work being marked, not according to the quality of the models produced, but according to the amount of effort put forward by the boy in making them.

Boys are not put at special parts of a piece of work. There is only one community model made each year in each class; the other models are made by individual boys. The boys work better on a model under a class foreman of their own who passes on the work, which is put together by the boys themselves. The community model develops accuracy in each boy, and shows him the relation to the whole, so that there will be symmetry in the plan of the whole; it also promotes unity of spirit and effort in obtaining a good object.

In grades 5 and 6 the boys make freehand work in drawings and thus learn the relationship of one view to another, a high technique of drawing not being demanded. When the boy gets into grades 7 and 8 he draws correct views with instruments, traces them and blue prints them, but all through, from grade 5 to grade 8, he works from a properly gotten up blue print prepared by the teachers and approved by the Supervisor.

The object in having the basketry work in the lower forms, followed by the clay modeling, and then by the Manual Training, is to have the work so designed that one feature fits into the other, and to a certain extent to have one prepare for the other.

Mr. Warters was emphatic in stating that the fine models in wood in the form of checker boards, furniture, etc., shewn to the Commission in the Carlton School were made by the boys without the slightest assistance from the teachers, otherwise than by demonstration and by demanding a redemonstration from the boys themselves. The teacher first demonstrates how to do the thing, and in order to see that this is impressed on the boys, he asks one or more boys to redemonstrate that to the pupils so that he knows that the boy has understood the principles and the practice.

Mr. Warters would like to see more design work than is being done. At present a boy is given a blue-print, for instance, of an umbrella stand with the slats arranged in a particular way in the sides, and is asked to re-group them. Some boys fail to group them in anything like a respectable form, then they are allowed to use the school blue-print, but many of the boys make arrangements which are tasteful.

In the new High Schools provision could be made for any particular industry in Winnipeg needing help, and the work should be differentiated to include that. It was not necessary to teach railway work as the C.P.R. had made provisions for their own people.

Domestic Science.

In grades 1 to 4 girls receive instruction as indicated under Manual Training. In grades 5, 6, and 7, girls take sewing from the form teacher under a Supervisor, one-half day per week. In grade 8, girls take Household Science under a special teacher. There are two centres fitted up in the public schools of Winnipeg. There is no Household Science in the Collegiate Institute.

SECTION 3: INFORMATION FROM Mr. WILLIAM J. SISLER.

School Gardens in a City.

Mr. William J. Sisler, of the Strathcona School in the North end of Winnipeg has made a special study of the school garden problem. Two-thirds of the children in his school are foreigners over five years of age, and they are very much interested in the garden. The children describe the manner of planting bulbs and vegetables; but this is not taken as a task lest it might interfere with their interest in the work.

It is found that the School Garden generates a regard for city property and the property of others. Although for two months the plots were unfenced, no injury was done by tramping over them, and the people respected the plots by walking in the paths. The children have been encouraged to conduct gardens at home, and competitions are held in the autumn, when exhibits of productions are shown. The School Gardens have been made places for competition work in school, but no fixed course has been followed.

The garden furnishes the basis for Nature Study, and also gives the child a proper idea of the relation of labor to wealth. Mr. Sisler thinks that there is no form of manual work so suited to children as gardening. The child is working with elemental things—soil, air, sunshine, water—and learns the value of labor when applied to the resources that have been furnished by the Creator. He believes that the chief cause of dishonesty among boys of good families is inability to acquire the necessaries of life. More manual work for boys and girls would make more honest men and women. Simple experiments in the School Gardens will lead the way to work of this kind in after life, which should increase the products of the soil, and make farm work more interesting.

The lines of work that should be followed in town and city schools, in Mr. Sisler's opinion, include plant growing and experiments in the school room; model and experimental plots in the school garden; home gardens; exhibitions at school where children show the results of their work, and have their parents and friends come and see. This work should be done on a larger scale in country schools with more space available, and town schools or Consolidated Schools should have a miniature experimental farm which would be of interest and practical use to the surrounding community.

Mr. Sisler's experience leads him to believe that the School Garden should be a permanent feature of our educational system.

There are six School Gardens in Winnipeg for the purpose of instructing children and training them in the growing of vegetables and flowers. In some

cases no school time is actually given to that work, the children spending all hours before and after school and sometimes on Saturdays, looking on it as recreation more than an actual task.

SECTION 4: AN ASPECT OF SECONDARY EDUCATION.

Principal Garratt, of the Central Collegiate Institute, after close observation of the Manual Training in the Public Schools since it started, thinks its extension into the general High Schools would be advantageous, and is looking forward to it with hopefulness. He thinks it would have an educational cultural value besides fitting a boy for a craft, would be the means of letting a boy discover his taste and would induce boys to go to school longer. He thought the reason why many boys go no further than this examination was because there was nothing which they want to keep them. They may have a very crude idea now of what they want, but that idea is not satisfied, and a technical laboratory with shop work of various kinds would attract those boys.

Evening classes for those who work during the day would be of great advantage to young men who now idle their evenings, and if made sufficiently attractive would be filled. Boys go to a moving picture show and stay there for amusement. They want to be interested, but they would be just as keenly alive towards shop work and such other work as appealed to them as they are to the picture shows. They want something that "goes."

The Collegiate has sufficient equipment to allow those who are going to the University to matriculate into the Engineering Department. They have over a year's mathematics above those who matriculate into Arts. Principal Garratt thought that course unwise; it would be better to make the matriculation into Arts heavier and take four years to do it, or put mathematics for Engineer's matriculation into the first two years of the University.

It would be very wise to make the mathematics as practical as possible by shop and laboratory practice. The idea of increasing mathematics was to raise the standard to that of the Technical Institute in Boston. His objection to it was that the boys have to do all their mathematical work at night, and do not get it as clearly as the matriculants in Engineering should have it. There should be a four years' course leading up to matriculation, but they try to do it in three, and it is not being done well.

CHAPTER LXXI: ON CONDITIONS AND NEEDS OF RURAL SCHOOLS.

SECTION 1: INFORMATION FROM Mr. C. J. HALE.

Roughly speaking there are in Manitoba about 1300 Rural Schools. Of these, about half of the total number had an enrolment in 1909 of under 25, with an average attendance in many cases of not more than 25% of the enrolment, while 169 had an average of less than 7 pupils. An analysis shows that not more than half the pupils in the lowest grade pass into the next grade in one year, while at the end of the fifth year, they rapidly drop out. These schools cost from $600 to $800 per year each, and the annual cost per pupil sometimes amounts to $150.

The vague impression that the Rural School is not doing its work well enough has now become a settled conviction. The teachers in rural districts are usually the most inefficient and inexperienced. Economic conditions have attracted almost all the men into other lines of work, and the country school is usually in charge of a young girl of very little experience either in teaching or in life.

The program of studies is usually the traditional three R's. A little Nature Study has been introduced, but the results are not satisfactory, owing largely to the failure of the inexperienced teacher to grasp its importance. The prejudice of parents towards anything outside the branches they themselves studied, also makes improvement in this direction difficult. The purely literary nature of the work fails to appeal to the youth surrounded by a new and growing community.

Add to these conditions the fact that the school is usually the poorest equipped and the most unattractive institution in the district, and it is little wonder that it fails to draw to it the young people, who find plenty of more congenial fields for the exercise of their growing energy.

Such is the picture drawn by Mr. C. J. Hale, who has charge of Normal School work at three points in the Province. As to what is to be done to remedy these conditions, Mr. Hale suggests:—the collection of the schools into larger units, the securing of better attendance, better teachers, an improved program of studies, and more pleasant surroundings.

To this end the Department of Education is now carrying on a vigorous campaign in favor of the consolidation of rural schools. Liberal aid by way of grants is given, and a speaker is furnished to any community wishing to look into the matter. It is hoped that with fewer and larger schools grading will be possible, and that at least one teacher of experience may be found for each school. With better teachers and a larger school site, practical and experimental agriculture may be taught to older pupils, and Nature Study to smaller ones.

School Gardens are being encouraged for this purpose, and a special grant is given to the teacher who shows marked success in this direction.

It is still felt that the training of teachers does not fit them properly for this work. Something has been done to remedy this by requiring all second-class teachers to take a short course at the Agricultural College. It is hoped that before long the Normal Schools will be equipped to do this work.

SECTION 2: INFORMATION FROM INSPECTOR McGUIRE.

Suggestions for Improvement.

One of the chief weaknesses in the rural schools of Manitoba is the immaturity of the teachers. Their education is also one-sided. The Collegiate and High Schools where the teachers get their chief training are dominated by the University idea. Not only is there practically no recognition of the fact that teaching is a vocation requiring knowledge and power along definite lines, but the teacher's course is made to harmonize with the University course as far as possible. The result is that the teacher's knowledge is book-knowledge, and she associates education with the inside of the school and with books.

Such is the view of Inspector McGuire, of the Central Division of Manitoba, who adds:—

> We want Nature Study; we want school gardening; we want industrial work in our rural schools; and we want the teachers to recognize that the ordinary school arts can be better taught through these subjects than by books alone. We are trying to get these subjects into our schools, and we are asking girls of 18 who have all their lives associated school education with learning and not with doing to introduce and develop them. It cannot be done. When these ideas have been emphasized in the teacher's education, they will be emphasized in the teacher's work, and not before. The Normal Schools as well as the Collegiates should combine education out of doors with education indoors, and it should be a model and an ideal for every teacher. Collegiate and Normal School courses are directly under the control of the authorities, and a more practical and sensible training could be given to the teachers while waiting for the growth of sentiment in favor of the larger issue—consolidation.

Inspector McGuire argues that if the teachers' education was properly accented, more emphasis being given to *doing*, without lessening the emphasis on *learning*, many things could be accomplished that are now beyond reach, because the great factor in the rural school is the teacher. An enthusiastic and capable teacher transforms a district—makes the school a delightful place, draws the children to her, increases the attendance, and wins the parents; converts indifference into active co-operation, hostility into sympathetic friendship, and in short, makes the school the social centre of the community, as it ought to be.

Through the teacher, therefore, must come improvement in our rural schools. If the teachers were properly trained they could do in a small way what it is expected a Consolidated School will do in a larger way. It would be possible for a teacher whose heart was in the work, to have a flower and vegetable garden, to plant a tree or two each year, and thus to beautify the place a little at a time. A teacher awake to the educational value of "doing" would have some form of industrial work in her school. She would see that little repairs about the premises and to the equipment were made by the pupils, without calling a meeting of the trustees; she would see that the boys' jack-knives became constructive and not destructive. With thread and needle in the school, accidents to clothing could be repaired without reference to overworked mothers, and in many ways work with the hands could be dignified and brought into its proper relation with life.

SECTION 3: INFORMATION FROM INSPECTOR JONES.

Consolidation of Schools.

The process of consolidation of schools in Manitoba is so rapid that statistics might be misleading. An extract from the report of the Inspector of the East-Central District (Mr. M. H. Jones) may be cited as typical of the progress that is being made:—

The tendency in this division seems to be towards consolidation of large districts rather than to the forming of new and small districts. This is largely due to the enlightenment of the people at various meetings held by the Department to discuss consolidation, and at the municipal conventions of trustees where the subject of consolidation has always formed a fruitful source of discussion. There are four consolidated schools now successfully operating, three of which have gone into operation this year, namely, Starbuck, Sperling and Brigdenley. The latter district has not yet erected its new building, but will do so next year, preparations now being under way. Starbuck has erected, on its beautiful ten acre site on the banks of the La Salle River, perhaps the best rural school building in the Province. Some idea of it may be formed from the cost—$15,000. It is a four-roomed white brick building, with full-sized basement on the most modern lines.

School Gardens.

Great attention is being paid in many sections throughout Manitoba to the development and care of school gardens. The following quotation from the Inspector's report indicates admirable activity and encouraging progress:—

With the exception of the schools in the municipality of Dufferin, a large percentage are now engaged in school gardening with great enthusiasm and success. The municipal councils of Morris, Macdonald, Rosser and Grey still give prizes for the best-kept grounds and school gardens. As a result, the work is carried on on a large scale in the various schools of these municipalities. I am pleased to report that no school that has begun this work of gardening has ever dropped it, though in many cases there have been changes of teachers. The school district of Sunnydale, nine miles north of Elm Creek, has done a work that deserves the highest credit. The district s very small, but from its inception the trustees have done everything in their power to assist in the education of the children. They erected a fine building and equipped it completely, and have assisted the teacher by procuring everything she considered needful to successful work. The teacher herself, Miss Annie Bell, is an enthusiastic worker and deeply interested in the welfare of the children. Before the trustees erected the school fence she had the ground broken while the farmer on the section adjoining was breaking his own land. It was seeded with a crop of flax, and when this was cut, harvested, threshed and marketed, she had $24 to spend on school adornment and equipment. Books and beautiful pictures were purchased. In addition to this Miss Bell had a very successful garden, which netted a neat sum also. She was the winner of the first prize in the municipality as well. There is no water on the grounds, but the trustees have put in a large galvanized tank and eave-troughs on the building. This shows what can be done by an interested teacher in overcoming difficulties.

CHAPTER LXXII: MANITOBA COMMISSION ON TECHNICAL EDUCATION.

On August 26th, 1910, a Royal Commission was appointed by the Government of Manitoba to investigate and report on the subject of technical education for industries and agriculture.

The Commission took the testimony of 93 witnesses, embracing manufacturers and other employers of skilled labor, skilled mechanics representing the various trades, social workers, leading educationalists, and prominent citizens whose official position and experience led them to view the subject in its relation to the general welfare of the community.

The Commission reported:—

From whatever point of view the witnesses spoke, they were one in saying that the conditions to be met required the establishment of some well-considered scheme of vocational training based upon and accompanied by the essentials of a good general education. It had been recognized by all that the school as commonly constituted, even when efficiently conducted and administered, did not meet the requirements of students, because large numbers did not complete the course, some because it did not appeal to their interests, others because they or their parents did not see that the education offered had any direct bearing on the work of life. In this way large numbers of young people of immature mind and incomplete training, without secure possession of the essentials of a general education, drift into temporary occupations that lead nowhere and lose two or three years most valuable for preparation. When old enough to enter upon some permanent employment seriously, they have lost through disuse much of what they learned at school and, in most cases, have acquired a habit of irregular application that greatly impedes their progress. The organization of a well-considered scheme of vocational training, elastic enough to meet the diverse aptitudes, interests and conditions of all types of pupils, it was believed, would go far to retain all children in school until the completion of the course, or until they were old enough to enter seriously on the work of life.

The assistance such work would give the student in finding his aptitudes and making choice of an occupation would save many errors and prevent many failures and disappointments, while the direct practical training received would enable him more readily to take his place at once as a worker and a wage earner. Not the least advantage to the community would be the fact that the ideals of the student would be moulded by the intentionally formative influences with which the school would surround him rather than by the chance influences of the street or the shop, and that training as a worker, a citizen and a man would go hand in hand.

There is, further, a large class of young men engaged in the trades who, through the conditions under which modern industry is carried on and the increased tendency towards specialization, have little opportunity for mastering the craft in which they are engaged. The one operation performed day after day becomes entirely mechanical. The directive intelligence of the worker is not called upon and the effect on the man is towards deterioration. The monotony of the performance lowers the moral tone and dulls intellectual activity. For the uplift of these men it is claimed that opportunity should be given through evening technical schools of becoming acquainted with the whole range of their work and acquiring an understanding of the scientific principles underlying the various processes. Such instruction, by broadening their knowledge and increasing their efficiency, would widen their opportunity for advancement and elevate them socially and intellectually.

For women workers, who for the most part enter on unskilled occupations early in life and are precluded from learning those household arts that make for health and happiness in the home and the elevation of the family, it was agreed that such schools could and ought to give courses in the various departments of home making, and that well-planned and wisely administered courses of this kind would make a material contribution to the endeavor for social betterment by giving better ideals and higher standards of living, while training to habits of thrift and economy.

In so far as the needs of the skilled industries are concerned, the testimony seems to show that they are at present served for the most part by the importing of skilled labor from abroad and from the older parts of the Dominion. With the exception of a few employers—for the most part large corporations—there seems to be little attempt made to train young people to the trades

requiring skill. Many employers frankly stated that they had not time to train apprentices, and that the wage-earning power of the apprentice being small, he was frequently drawn away from his trade in the early stages by the greater wage he could earn in one of the employments where skill was not required.

Many of the witnesses also who testified had served apprenticeship in the British Isles, and their evidence showed that a large number of them had found it necessary for the mastery of their work to study the theoretical side of their trade and supplement their general education by attendance at evening classes, while many trained in Canada had done the same thing through the medium of the correspondence school.

The Commission made enquiry outside the Province of Manitoba, in Canada and the United States. They reported:—

The problem at every point visited, though stated in various ways, seems to be that submitted to your Commission, viz.: how to provide in schools such training as will suit the varying capacities and circumstances of children, retain them in school during the years most profitable for education, and fit them for the practical duties of life. The plans by which the solution was attempted in the several places visited had many features in common.

The Commission's Recommendations.

After much study and inquiry, the Commission recommended;—

1. That it is desirable that such measure of vocational training as is found possible should be provided for the people of our Province—

(*a*) On account of its value as a means of interesting large numbers of pupils that cannot be held by the purely academic work of the schools;

(*b*) As a means of a fuller and more rounded development for all classes of children;

(*c*) As an aid to pupils and parents in discovering capacities and aptitudes to assist in making choice of an occupation;

(*d*) As an agency for producing vocational efficiency through the development of the activities that are used in the practical affairs of life;

(*e*) As a means of elevating the intellectual status of the worker and broadening the range of his interests by giving him an understanding of the scientific principles and natural forces that underlie the operations of his craft;

(*f*) As a factor contributing to the industrial progress of the community;

(*g*) As an agency for social betterment through the increased intelligence and wider outlook and enlarged earning powers of numbers of trained workers.

2. That the foundation for such training should be laid in the elementary school in suitable courses of hand and eye training, leading up to the regularly-organized industrial work in the higher grades of the elementary and through the secondary school.

3. That vocational and general education should go hand in hand, each in turn contributing to the effectiveness of the other and each recognizing their interdependence.

4. That at the present stage of our development, this can be done more economically and effectively by the modification of existing agencies and the enlargement of their scope than by the establishment of special institutions.

5. That a certain number of the members of the Advisory Board should be men engaged in the industries, and selected on account of their acquaintance with and interest in the aims and ideals of vocational training, and that school boards be authorized to appoint advisory committees outside of their own members to assist them in the organization and development of the work of vocational education.

6. That school boards be authorized and encouraged to provide such courses in vocational education as will suit the needs of their respective communities.

7. That such provision should include carefully organized evening classes, in which opportunity would be given to men and women engaged in occupations during the day to improve their general and technical education.

8. That the Department of Education should appoint an officer familiar with the aims and methods of vocational education, whose duty it would be to advise with and assist school boards in the organization of such work.

9. That grants be made by the Provincial Government as is now done in the case of Manual Training and Household Science, to assist in meeting the cost of equipment and maintenance of approved lines of vocational training.

10. That in any scheme of education looking to increased vocational efficiency, provision must be made for systematic physical education.

11. That provision be made for the preparation and training of teachers to meet the requirements of the new activities of the schools.

12. That when there shall be a sufficiently large number of students requiring higher training than is herein provided for, a technical college shall be established to provide such training.

SESSIONAL PAPER No. 191d

CHAPTER LXXIII: THE UNIVERSITY OF MANITOBA.

The University of Manitoba, established by Act of the Local Legislature in 1877, has the sole power of conferring degrees in Arts, Law, Medicine and Engineering in the Province of Manitoba.

The Government of the University is vested in the Chancellor, appointed by the Lieutenant-Governor-in-Council, and a Council of 65 members, composed of representatives from each of the affiliated Colleges, the members of Convocation, the College of Physicians and Surgeons of Manitoba, the Provincial Government, and the Faculty of the University.

Seven Colleges Affiliated.

The following Colleges are affiliated with the University:—St. Boniface College, St. Boniface (Roman Catholic); St. John's College, Winnipeg (Church of England); Manitoba College, Winnipeg (Presbyterian Church in Canada); Wesley College, Winnipeg (Methodist Church in Canada); Manitoba Medical College, Winnipeg; Manitoba College of Pharmacy, Winnipeg; Manitoba Agricultural College, Winnipeg.

Relation to Department of Education.

The Department of Education has 7 representatives of the Council of the University, and pays annually a great of $20,000, the understanding being that this is to be devoted mainly to the development of the Engineering side of the University work.

The University is not a Provincial institution; it is a private corporation under the laws of the Province, a body corporate to hold its own property. The Council is the governing body, arranging the course of study, handling the property, etc. The Government does not require that their representatives should be graduates of a University.

Courses of Instruction and Degrees.

Instruction in the University is at present given only in the Natural and Physical Sciences, in Civil and Electrical Engineering, in the Higher Mathematics and in English, History and Political Economy.

In all departments other than those in which the University offers teaching, students may obtain the necessary instruction either at one of the colleges affiliated with the University, or at some other recognized institution of learning.

Provision is made for instruction in Civil Engineering and Electrical Engineering, each course covering a period of four years. The Engineering Depart-

ment is not affiliated with any other College. It has no Mechanical Engineering as yet.

In the Engineering course practical work is given in surveying, but not in hydraulics. Having no shops, the University is not able to give attention to foundry work, wood and metal work, but the students almost without exception are engaged in engineering work during the long vacation in summer. During the session visits have been made from time to time to shops in Winnipeg under the auspices of the Engineering Department, and students have examined a good many engineering structures in the city and surroundings, and visited a good many engineering works.

The course in Civil Engineering is designed to give a broad education in those general and scientific subjects which are the foundation of all branches of engineering; and a special training in those subjects specially related to Civil Engineering, enables the student to take a position in any of the special branches, such as:—

(1) Railroad Engineering.
(2) Land Surveying.
(3) Railway and Geodetic Surveying.
(4) Hydraulic Engineering (including the development of hydraulic power, etc.)
(5) Land Irrigation.
(6) Municipal Engineering (including design and construction of roads and pavements, water supply systems, sewerage systems).
(7) Sanitary Engineering.
(8) Bridge and Structural Engineering.

As the civil engineer frequently has to deal with problems involving electrical and mechanical work, the course also provides instruction in the principles of Steam and Mechanical Engineering, as well as the principles of Electrical Engineering.

With this groundwork the student has a wide field from which to choose his life work, and the course especially fits him for the management and direction of business and engineering enterprises after he has obtained the necessary practical experience.

Course in Electrical Engineering.

This course is intended to give:—(1) preliminary training in the various sciences which form the basis of any engineering education—Physics, Chemistry and Mathematics; (2) instruction in the general engineering subjects, such as Surveying, Mechanical Drawing, Strength of Materials, and Hydraulics; and (3) acquaintance with subjects required to qualify a man for the special work of an Electrical Engineer, viz. the flow of continuous and alternating current machinery, electric railways, electric lighting and power distribution, mechanical engineering, hydraulic machinery and machine design.

In general the course is intended to give a student a working knowledge of the principles of civil and mechanical engineering, and a more specialised training in electrical engineering, which, when combined with experience in practical work, will qualify him to perform the duties of an engineer in

charge of the design or operation of electrical plants, railways and other industries.

The degrees of Master of Civil Engineering and Master of Electrical Engineering will be conferred upon those who have spent at least two years after graduation in the active practice of their profession and have presented theses (with plans) satisfactory to the examiners, upon any engineering work with which they have been connected.

Course for Land Surveyors.

The course has been especially arranged so that the students who intend to take out licenses as Land Surveyors may select subjects from the Civil Engineering course which bear directly upon the examination for Land Surveyors.

Not Training Apprentices or Foremen.

The University is not doing anything towards training apprentices or foremen by means of short courses. The Faculty recommended to the Provincial University Commission that they consider the advisability of the University undertaking the organization of evening classes, etc. The suggestion arose out of the discussion in the Faculty of the advertising by the International Correspondence Schools of Scranton, Pa.

Professor Brydone-Jack, of the Faculty of Engineering, thought the University would be able to take up night classes in Drawing without any trouble, as they could use the same apparatus and desks which the regular students use. In addition to that, there are certain laboratories more especially used in engineering for testing materials, which would include brick, stone, iron, steel and cement, that could be used advantageously in the matter of technical education. In their report the Commission recommended that until a Technical College should be founded, the University should take up that work and utilize their laboratories and drafting facilities.

The Technical High Schools in Winnipeg should be largely used by those who want further education along technical lines. A Technical College would be a natural part of the organization. The students could have their Science work and some Arts work done by the University staff, and other technical work would be done in separate rooms in a Technical College.

The idea of Professor Allen of the Faculty of Science was to organize all those technical courses on lines that would correspond with the courses of the professional men in Engineering, so that the men who attended them would make progress toward professional ability in their own lines.

Research Work.

The University attempted research work in 1909. So far they have only built up laboratories on lines on which the faculty were interested as professors. At the British Association meeting in 1909 the faculty prepared 11 or 12 papers showing original investigation on scientific work. The University had endeavored to cultivate relationship with the manufacturers, and a number of problems had

been sent in by manufacturers in chemistry and in a few other lines, but nothing that would be called research work except chemical analysis and advice.

The University would welcome a grant from the Dominion Government for a technical laboratory equipment, so as to be ready for any investigation that came up. It was difficult to say whether they could get students of sufficient calibre to help in that work. Because of lack of facilities in Winnipeg, students have been sent to other Universities who might have been retained if facilities existed here. Some manufacturers have expressed themselves favorably towards University trained men; others have complained of them as not being practical. Prof. Allen thought that was due to the fact of this being a new country and the manufacturers not realizing the situation.

A fund of $100,000, left by the late Mr. Isbister, is available for scholarships which are given in the University itself. Some of those scholarships are given in small groups of courses—civil and electrical engineering, mathematics, languages and other Arts studies, also in medicine, the total amount being $3000 or $4000 every year.

The matriculation examination for the University is higher than that of many institutions in Canada, the object being to save time in the Engineering courses, to get the students in mathematics as far as possible, and to get the most efficient work possible before they enter the University. Another reason was the higher standard in the Technical Schools of the United States; and the University authorities wanted to have no criticisms levelled against any of their Departments on account of standing. Pass marks in the professional courses here are higher than in the Arts classes all through.

A Graduate's Views.

At Medicine Hat, Alta., the Commission examined the City Engineer, who had graduated from the University of Manitoba. From his experience he did not think four years a sufficient course for a civil engineer, and in this he believed he expressed the opinion of all the civil engineers. At a meeting of the Canadian Society held in Winnipeg in March, 1910, the question was discussed, and not a delegate dissented from the statement that the course should be five years. They realized that of the men who go in for engineering a large percentage take up the commercial end of it, roughly estimated at 75%, the other 25% follow the theoretical, technical and constructive side. He therefore suggested that the 5th year should be an alternative course for those wishing to go further into the theory and technique after the four year course. Of course theory is the basis on which the whole thing rests, but students did not get sufficient time to devote to the commercial end of it, and it was not impressed on the students as it should have been. He thought the mathematical standard as asked for by the mathematical department of the University in some parts was beyond what he should care to take himself as an engineer. In some higher branches of calculus he would be very much disposed to it, but so much time was taken up that could be more adequately used in the practical side of the work. The mathematical instructor for engineering should be a different instructor than the one for the Arts course; he should be an engineer, so as to realize what mathematics are really required.

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CHAPTER LXXIV: FURTHER TESTIMONY AS TO INDUSTRIES AND EDUCATION.

SECTION 1: SOME TESTIMONY AT WINNIPEG.

Chas. F. Roland, Industrial Commissioner, stated that a census had just been taken of the manufacturers in Winnipeg. The most important industries in regard to employment of labor were iron and brass (including the railway shops), employing 760 hands; cement and building trades, with 1,890; printing and publishing with 1,400; lumber and mill work; clothing, brewing and malting, etc. In the previous year, 22,000 enquiries had come in—from manufacturers wishing to set up businesses, from parents who desired further opportunities for training for their children, and from men applying for work as office hands. It is easier for artisans to obtain positions. The limitation of the number of apprentices hinders boys who would like to take up work from doing so.

Mr. Roland expressed the opinion that Employment Bureaux should be conducted by the Government—either Dominion or Provincial, and not by individuals. There was some talk of opening a Municipal Bureau in Winnipeg.

Robert S. Ward, President, Winnipeg Trades and Labor Council, stated that his Council had often considered the question of making its members more fit industrially to do their work. The first thing, however, was a good elementary education, for without that men could not benefit by technical education. Elementary education should be made compulsory up to 16, and books provided free where necessary. The education of the children is needed for the safety of the people, and the Council stands for all children getting a good education in the common schools. When the children go to work, they should have evening schools provided for their further education. The Council is opposed to schools that will teach trades, as there are sufficient tradesmen available, but they could not prevent others than apprentices and craftsmen going to the evening classes if established. Many firms employ handy men, and this is one reason why they cannot keep their apprentices.

Richard A. Rigg, Secretary, Trades and Labor Council, said the Council recognizes the general principle as absolutely essential, that any form of education, whether technical or otherwise, should have for its object the improvement of the general condition of the workers, not only materially, but intellectually, and be based upon such a plan as to develop manhood and womanhood, and assist in relieving the monotony prevailing in industry at the present time in consequence of specialization. The most ample opportunity should be afforded to persons working at a trade to understand the general principles that govern the trade as

a whole, to have the opportunity of developing their knowledge of the trade along the highest lines; and to perfect themselves at their trade and make it more of an art, instead of a task.

Witness was a member of the Bookbinders' International Union. The International Typographical Union had adopted a correspondence course for helping the tradesman in his work, and helping to relieve the monotony that curses the large majority of the compositors at the present time, by giving his mind some play. The workingman is familiar with the demand; he feels the demand itself; he already wants to know more than the mere routine of apprenticeship teaches him; and if the State does not provide a system of technical education, the Unions themselves will do it. At the same time, the witness did not think it fair that the trades should be expected to do this.

Witness expressed the opinion that the dull monotony of work would not be relieved successfully until the State controls industries. At the same time, if the laboring class becomes sufficiently well educated and reaches that intellectual standard where they can think guidingly themselves, they will find some means of liberating themselves from the monotony of present conditions. There is nothing so desirable in this country or any other as that the laboring class should be well educated, and should have their minds liberated to thinking.

Arthur W. Puttee, editor of the Labor paper "The Voice", who had represented the constituency in Parliament, stated that he was in accord with the other witnesses to a great extent. In regard to the trade school question raised by Mr. Ward, witness stated that their feeling was that technical education along proper lines, bringing out the scientific instruction in the principles of the trades, would be valuable to all. The courses should be made broad enough for all to get what they required. Mr. Ward, questioned, said he agreed with this, and what he wanted was that the industrial hand-worker should have educational opportunities provided by the State as suitable to his needs as those for the professional man.

Mr. Puttee said he would provide technical education absolutely in public schools; the obligation is national, to improve the citizen generally. The men often move a long way from the place where they learn their business, and therefore their training is a public matter. Technical education should replace the apprentice system, by teaching a boy the whole of a trade, which he cannot learn in regular shop work. Technical education would interest a boy in the art of his trade, and he would no longer be willing to stand at a machine all day long. The State and the industries both need technical education. One of the objects of technical education is to take away the monotony and give a man pleasure and joy in his work. Such a man makes a better citizen, and thus the community benefits in the end.

Witness said he did not see how publicly supported schools could debar any man from qualifying for a position other than the one he was engaged in at the time, and the labor movement had nothing to fear from allowing, say, a grocery clerk to train as an electrical engineer, for he would have to serve his time in the trade before he became competent. The witness added that

Trades Unions are not so afraid of people learning the trades as some people think. What they did object to was a trade school turning out "half-baked mechanics". The attitude of organized Labor towards trade schools privately conducted would be antagonistic. The best trade school is the shop and the factory. In reference to the C.P.R. apprentice school, witness considered it quite legitimate for this Company to train their own boys.

Messrs. G. W. Murray, Limited, manufacture sashes, doors, show cases, etc. Their business includes, in its branches, all classes of joinery and cabinet work, interior decorations, art glass and metal work; they employ over 100 men, including about 20 apprentices and improvers, who receive the usual instruction which belongs to shop practice. Some of them take lessons on special subjects through the Scranton Correspondence School, which is far from being a satisfactory medium of education, as the average young man has not the courage to follow up instructions which have not the backing of the personal influence of a good teacher. While well qualified men are being turned out from the factory, it cannot be said that this is the rule, and with the heartless feeling of many tradesmen, and the equally heartless and impracticable ban set upon the apprenticeship system by the Trades Unions, the outlook is none too bright for young Canadians who would enter the field of skilled labor. In their own factory Messrs. Murray are paying the highest wages, and are not molested by Trades Unions, who have never hindered them in their efforts to train apprentices.

The men are mostly British trained, with quite a few from North Western Europe, who are, as a rule, splendid mechanics, comparing more than favorably with our own people. Consequently Messrs. Murray feel that state-aided schools, equipped to suit the requirements of our country, would be of great benefit to the industrial classes, who at the present time are left largely to their own resources.

Many of the employers of labor are themselves ignorant of the higher technical points in their trade, never having had the opportunity to learn, and are often unsympathetic with the object of technical training.

SECTION 2: SOME TESTIMONY AT BRANDON AND PORTAGE LA PRAIRIE.

The Chairman of the School Board of Brandon, Mr. Henry Sampson, regretted the absence of Manual Training and Domestic Science in the public schools, but stated that it was intended to introduce them at an early date. Physical Culture was appreciated in the Collegiate Institute. Only a small proportion of the population was engaged in industry, Brandon being more of a commercial and distributing centre. In Mr. Sampson's opinion, if a boy is to work in a foundry, he should be given a training in the principles of that trade, as he would then be educated, have a purpose in life, and would have learnt what he was best fitted for. Mr. Sampson said that he did not think a boy would be a skilled workman without a good day school education to build upon, and that if the public schools

were made sufficiently attractive to hold the boys, compulsion of attendance would not be necessary.

Mr. Alfred White, Superintendent of Public Schools, also said that Manual Training in the schools might have the effect of keeping boys longer at school. School work should be more closely correlated to the work the boy expects to take up after leaving school. A boy appreciates what he sees, handles and does more than what he is told, and something in regard to his occupation would appeal to him. The same applies to girls in regard to domestic subjects. Children could make far better use of Technical Education if they had preliminary industrial training in school.

There is a little Nature Study work done in the schools, in the form of window boxes, there being no land available for anything more. Mr. White hoped to encourage home gardening among the children.

The Superintendent of the Ruthenian School said that he thought foreigners would make better progress in learning English if they were taught industrial or manual work along with the language, as they would be more interested.

Mr. Thomas Maguire, Inspector of Schools for the district around Portage la Prairie, stated that the average country child goes to school for about 5 years, and few go on to High Schools. During that time they learn only the 3 R's, and perhaps a little music. All these things could he learned much more quickly if they were learning industrial things at the same time. Manual Training and sewing could be introduced into country schools without any expense at all, and trees could be planted.

Mr. Maguire had been telling the teachers that they should use the means that lie at their hands. The only way to make a change is to change the system of training teachers, and that means changing the whole system of education, to the extent of taking industrial work at the training college.

A School Garden at a central point, with a travelling instructor, would do much good. Young people would welcome the chance of meeting in the evenings to have a social time. If the children in the rural school at the end of their 5 years knew something about Nature Study, it would make an enormous difference. The teachers have not been trained to observe; they can only teach out of books. Mr. Maguire said that a School Garden is within the power of almost every teacher.

Mr. Hugh Taylor, representing the Trades' and Labor Council, said there was need for technical education for railway men who did not have the opportunities provided by the C. P. R. for the mechanical men. Many railway workers would attend night classes for instruction in the principles of their work. Many of them take correspondence courses, but would prefer a teacher demonstrating to them on the spot, on such matters as airbrakes, etc. The men are interested in technical education, even though they do not get higher wages if they take it

Mr. Edmund Fulcher, representing the Trades and Labor Council, expressed the view of the Labor unions that if all workers had the opportunity for technical

education, there would be no advantage to the individual. The Labor Council considered that technical education should be free, should be given at night, and only to those already engaged in the respective industries.

Mrs. McEwen, representing the Local Council of Women, at Brandon, said her Council had long desired Manual Training and Domestic Science in the schools, and she regarded it as the children's due. She also thought that Trade Schools should be established, to take the place of apprenticeship, and give the boys and girls an idea, so that they can start on their life work with a good foundation to work upon. From these, some could proceed to the Technical Schools to be trained as superintendents and managers.

Mrs. McEwen considered that every girl should be trained first as a good home-maker.

SECTION 3: SUMMARIES OF OTHER TESTIMONY.

Building Trades.

If a school could be established in the central portion of the Province where young men, after leaving the public school, could attend and get instruction in measuring plans, making drawings on a larger scale of portions of work, and having plans worked out in practice, they could get a great deal of information that would make them more valuable and efficient.

A training school was recommended where boys could get practical training in the study of plans and laying out of stairs, rafter work, and other subjects requiring study.

A witness representing the Brotherhood of Joiners and Carpenters stated that this Union believed so firmly in Technical Education that they had devoted an article every month to it in their journal.

Evening Classes were the best form of technical education, so that men who are already at work might improve themselves.

A representative of the Society of Carpenters and Joiners stated that this Union regarded Technical Education favorably. Very few young fellows in Brandon systematically learn to become carpenters. Technical Education is necessary for special work. Carpenters should have plane and solid geometry. architectural drawing, strength of materials and building construction, stair building, hanging doors, roof construction, etc., and would be glad to get technical education along these lines. Hitherto the class of work required in the West had not been very high, but it is improving constantly, and men now need more training. It is not necessarily a question of earning higher wages, but of being able to work more easily.

A manufacturer of sashes, doors, general building supplies and office fittings at Winnipeg, stated that he could get all the men he needed. Almost everything now is made from detailed specifications and blue prints to be followed, and he had found that while the men could do the work with their hands, their heads did not help them out for the reason that they had not had the necessary training

in their youth. Witness would rather take a boy who has had 3 years of Manual Training, than the man who has taken a correspondence course.

In plastering there is an apprenticeship system, each contractor being allowed 2 apprentices, who must not be under 17 years of age. The Union does not restrict the number of apprentices, but insists that they shall serve for 4 years, and be taught the whole business. The object of this is to turn out efficient men. Occasionally an apprentice is allowed to go to another contractor, in order to learn a particular job that he cannot get otherwise, but they are not encouraged to move about from one employer to another.

Plumbers should get instruction in regard to sanitation, should know the meaning of sewer pipe, trap, syphon, and how they should be kept in order.

A paint manufacturer stated that many of his employees would like to go to Night Schools to study chemistry, which would be of great advantage to them in connection with the varnish plant.

A member of the Painters' and Decorators' Section of the Builders' Exchange said that men have to know the rudiments of the trade to get along at all, and it would be very useful to them to study the higher class of work such as decorating and drawing. The Manual Training work in the schools is a great help, and when they finish up their models and stain them they will develop along these lines. There should be a trade school where a boy could learn the primary principles of painting and decorating. Decorators should have instruction in color harmony.

In the painting trade most of the best men are English, and their superiority is ascribed to the apprenticeship system.

Metals and Machinery.

(a) Blacksmiths. A blacksmith may be called a good blacksmith and skilfully forge a piece of iron, and yet be unable to read; but if that man knew the chemical qualities of iron, phosphorus, sulphur, carbon, etc., it would be of immense advantage to him. Even if he could not analyse a substance he would recognize the cause of any trouble that might arise.

(b) Machinists. A machinist in the C.P.R. shops spoke highly of that Company's system of training apprentices. He considered that this system could be applied to other large companies.

(c) Tinsmiths. The Local Manager of the Kemp Mfg. Co. said tinsmiths need elementary inorganic chemistry, geometry, (particularly the development of solid geometry), mathematics, mensuration, magnetism, electricity, machine construction and drawing. 65% to 75% of the men in this line are skilled craftsmen.

Technical Education would be the means of getting boys interested in the different industries. Manual Training at school would help, but witness thought that metal work should be taken up, as it is a most resistant material, and would give a boy a better idea of the trade. Visits to factories by schoolboys would be a good thing, and witness would be glad to open his works once a week for this purpose and have competent men explain the processes. A teacher would need to have both theoretical and practical knowledge of the business.

If Manual Training were carried into the Technical High School, it would help young fellows in this business. They could learn pattern cutting, heating and ventilating in evening classes, but the installing of iron furnaces would have to be learned through practical work. A technical knowledge of heating would be useful to a man who had learned his trade.

In the tinware business, forms of agreement for apprentices are provided for the boys to sign, but they will not sign them. A boy who was offered $4.50 a week said he could earn $10 by delivering messages.

In the sheet metal trades apprentices serve for 3 or 4 years.

(d) Engineers. The President of the Bridge and Iron Works said, the only way of keeping up the supply of men, other than by importation, is to give them Technical Education, to fit them for promotion. He would be glad to adopt the policy of promoting men in his own works. It is very difficult to get men with practical as well as theoretical knowledge; the engineering courses in Canadian Colleges are not practical enough, and the men are unfamiliar with shop practice, and too limited in knowing only one line of the business, which may result in their making errors of judgment.

Children in the Public Schools might just as well begin to learn the rudiments of practical science, chemistry and some other branches; in the High School, at the same time that they are taking up algebra and geometry, they should study plane trigonometry and advanced chemistry and physics.

Boys who want to become draughtsmen should have mechanical drawing from the start; artistic drawing is no help to them. Witness thought Manual Training very valuable.

There should be Night Schools for young fellows working in shops. Demonstrations of shop work at a Night School would help to prevent waste.

Witness considered that the important thing was to have the practical and theoretical training given simultaneously; first tell a boy how to do a thing and then show him how it is done.

As a manufacturer, the witness would encourage his men to ally themselves with instruction. Manual Training should not be limited to woodwork; all ordinary occupations ought to be demonstrated.

Electrical Trades.

A course in elementary chemistry would be very useful to the men in these trades. The business is developing faster than the supply of trained men, and it is very hard to get a skilled man.

Leather and Rubber.

A manufacturer of saddlery and leather, harness, collars, and wholesale shoe findings stated that 95% of the goods were manufactured by machinery. A school that would teach boys about leather would be very helpful. Manual Training helps boys very much, by teaching them the use of tools and familiarizing them with mechanical ideas, as well as in developing character.

In the leather trade the apprentice has to learn one portion of the business, and then pass on to another. Employers cannot get as many boys as they would

like, as those who are willing to work will not learn the business, and cannot get good salaries unless they learn a good deal about mechanics.

Printing Trades.

Lithographers find the scarcity of help a great draw-back. Boys are very unsettled, and it was thought that perhaps Manual Training would help to direct their minds in some definite way. The schools do not pay enough attention to the utilitarian side of education; the tendency is to educate a boy away from the dignity of labor.

A knowledge of chemistry is essential, and one witness stated that his success in the world had been due to a country school teacher who taught him chemistry and awoke his interest in the subject. When he went into the lithographing business, it enabled him to keep ahead of his fellows, and even if he did not know a thing, he knew how to find out.

A job printer and publisher said that he found it difficult to get boys to learn the trade. He thought most young men would take advantage of night schools along technical lines, and it would make them efficient and ready for promotion.

If young fellows had the opportunity for Manual Training, it would quicken their intellects and give them an idea of sizes and dimensions and the fitness of things. The boy in the composing room could get a course in primary Euclid, which would make him more proficient, or a course in drawing, which if properly directed would make him invaluable.

In the printing trades, one firm has 16 apprentices with 180 men. Few of the boys go through with the training. There are plenty of applicants, but not the right kind of boy. The firm would be glad to take more if they were available.

In the lithographic business about half the employees are trained for their work; it takes about 4 years to learn. Some boys leave to drive express wagons, because they get more wages—about $12 a week; but those who stay at the trade eventually earn $25 to $30 per week. Employers prefer a boy who has passed the entrance examination to the High School and is not under 16.

Foodstuffs.

Bakers should have some sort of Technical Education so as to understand fermentation and the action of salt, water and yeast on the gluten and starch in the wheat. Such training would help to eliminate waste. If there were a school in connection with some public institution where actual baking is done, where a young man could go and possibly get a certificate, as a proof of efficiency, it would be a great thing.

Young men apprenticed to the milling business would be very glad to take evening classes or other means of technical education in regard to the manufacturing of flour or the chemical analysis of grain. All experienced men understand the proportion of starch and gluten and other constituents which make up a kernel of wheat. A demonstration of the chemical analysis of all those things would be very useful to young men.

Brewing.

A brewer and manufacturer of aerated waters said that all the various lines of technical education are coming into his business. He could remember the time when they scarcely thought it worth while to clean up, but now sanitation in a brewery is one of the chief things; cleanliness is insisted upon throughout the place. Formerly they tested corn by feeling it; now they use the most highly accurate instruments, tested from time to time. The microscope is used to a large extent. Chemistry is essential. Workers in the brewery would be helped by going to night classes. A laboratory is maintained in the brewery, but the more serious chemical problems are sent to one of the scientific colleges for solution. The firm pays a yearly sum, and may send samples of malt, hops and yeast, but has to pay extra for an analysis of water. Witness thought it would be feasible for the breweries and maltsters of Canada to maintain such a Technical School, and the Federal Government might help.

A witness stated that his business was not keeping up with Germany, because if he wanted any technical information he had to go to the brewery schools, which were officered in every case by Germans. A German name is a sort of hall mark that there is training behind it.

The witness felt that the Federal Government should give generous help to the Provinces, either by establishing Technical Schools or assisting those already existing, by direct money subsidies or grants of land, so that the work may go on. It is only by effort that Canada can take her proper place.

Railway Shops.

The Canadian Pacific Railway apprentice system is one of the best, in the opinion of a witness at Winnipeg. This system has already been fully described elsewhere.

In the shops of the Canadian Northern Railway boys have a good chance of learning the trade, as they are changed round every six months, and in their fifth year spend the whole time in the erecting shops.

CHAPTER LXXV: THE MANITOBA AGRICULTURAL COLLEGE.

Information obtained from PRINCIPAL BLACK.

The Agricultural College has an attendance of about 225 students. The longest course runs five years and leads to the degree of B.S.A. (Bachelor of Science in Agriculture) from the University. The first two years are the same for all students and no matriculation standard is required for those who enter this course, but there is tacit understanding that the student must have a good general education when he completes his second year.

The University of Manitoba accepts the judgment of the Agricultural College as to the suitability of students to go on. The chief departments in the College are engineering or farm mechanics, field husbandry, animal husbandry, chemistry, botany, dairying, horticulture and English.

The College has the direction of all work carried on among farmers under the auspices of the Agricultural Societies and is thus kept in touch with the best farmers.

In February of each year short courses are conducted for farmers and farmers' sons. In 1910 this course was attended by 176, some of whom registered in the regular College course.

In June there is a two weeks' course for threshing engineers, in which 50 or 60 enrolled. The number could have been much larger.

A short course was given also for inspectors of weeds, showing how to identify weeds and how to advise farmers as to destroying them.

A short winter course is held for grain judging and live stock judging, but the College equipment does not justify more than one week's course.

There are summer courses for four weeks to 6th Class Normal students, two classes being held in summer.

Through the co-operation of Railway Companies a special train was run through the Province for 3 weeks in the summer of 1910, to stimulate interest in dairying.

In carrying out the crop competition throughout the Province the faculty of the College developed a score card that Principal Black believed would enable them to place at the head the best farm with the best home attached. The judges are required to consider everything about the place from the basement to the attic; the farm buildings, their convenience and state of repair, the location of the well; the equipment of the farm, the land, the kitchen garden and the live stock, whether there was any evidence of improvement, whether the young stock showed any improvement on the dam; whether the fields are free from weeds; whether cultivation is up to date. This score card is based on actual farming and living, and the motto is "Manitoba the land of homes". This competition has the effect

of making illustration farms, and the work is doing more to encourage industrious farmers to put into operation up-to-date methods which they know to be advisable than anything else undertaken, and better results are being obtained than in any other outside work the College does. It would be a good plan to follow up the man who won the prize by visiting him twice a year to advise with him.

In the score card the man is given certain consideration for book-keeping, but it was thought too personal a matter to ask what money he had made.

While the College advises a certain method of procedure in destroying weeds, the farmer experiences a great deal of difficulty in getting these methods into practice; the spirit is willing, but the flesh is weak. The College planned for the destruction of the *sow thistle* in the Red River Valley by renting for 5 years 10 or 15 acres of track overrun with *sow thistles* and known to be absolutely worthless, then engaging a farmer to cultivate that track under the Professor of Field Husbandry, but the plan failed.

For two or three years an organization composed of six students, called the Research Association, had questions submitted by the Heads of Departments, one question each, typewritten on a single sheet. These young men are required to answer the questions at the end of the year, and are given to understand that their answers well be considered in their second year course. For example, in Animal Husbandry the boy would be required to note the number of foals that die in a locality and to ascertain whether the dams had been working during the previous winter. The effect would be to teach boys to observe and investigate. In horticulture they were called upon to observe whether the seedling plums are grown in bluffs where they live and work, and the College has thus been able to get some valuable information along that line. This Research Association is capable of developing into a very useful institution in connection with the College work.

The Normal students come for short courses in autumn and engage in a considerable amount of horticulture. They are taught how to grow flowers, how to plant a tree, how to germinate seed, how plants grow. In Physics they are taught the principles underlying the retention of soil moisture. Demonstration work is carried on as simply as possible in the hope that they will be able to duplicate it in country schools. They were asked to plant plump and shrunken grains of wheat side by side and to observe what came forth. Some demonstrations were given to the girls in Household Science, and the young men took extra work in the Mechanical Department. This course lasted about a month.

They took some work in the management of School Gardens, receiving eight or ten practical lessons in the open in laying out plots and planting. When they left they would be able to impart a considerable amount to children in schools, and thus influence those who might attend the College five or six years hence, though the time of the course is very short. Only 10% of those teachers come with a fair elementary knowledge of germination and soil and its conditions; and if they had a good amount of elementary preparation in their school days, much more could be done with them. A few students who had come from institutions in the East where they had some work in Manual Training were able to grasp lessons much more quickly, and would go away better qualified to do school work.

If teachers could get a three months' course they could not avoid putting what they learned into practice; but in the case of the average teacher, it is found necessary to change her view point. Young women are found who have been teaching school several years who have not the kindly feeling towards country life that they should have. They came from homes where social life was not considered important and where there was nothing on the daily program but work, eat and sleep.

Last year, the Teachers' Association was invited to meet at the College, and the necessity was impressed upon them to have teachers put into operation in their schools some of the principles learned at the College.

The members of the Faculty who attend Agricultural Meetings are impressing on the people the necessity of keeping in touch with the local school and looking to it for improvement in the next generation.

A travelling instructor spending three days at a time at a school would be a great help, and Principal Black of the College thought it was feasible and would save a great many years if that plan were carried on for two or three years. It could be combined with the weed inspection, but the inspector would be unpopular in the locality when he started out to inspect farms for weeds. He believed the young people would come in the evenings to hear the right man with proper equipment, and at certain seasons the grain farmers would also attend to hear such a man. A good practical man, who would give Nature Study to children and illustrate School Gardens and give something for the grown people on field days, would do a great amount of good, and would change the attitude of people. The College could manage that work if it had the money. Some of the 4th year men of the College could do that work.

The fact that teachers attend College courses in the summer helps to bring agricultural students to the College, because such teachers interest the young men to go there.

At present there are no means for the young men of the College to get the benefit of the work carried on at the Experimental Farm at Brandon, except to have the Farm Superintendent deliver lectures in the College. Fortunately the students are getting the benefit of experience gained at the farm through the Professor of Field Husbandry, who was Superintendent of the Experimental Farm.

Principal Black was of the opinion that the time was close at hand when all educational institutions, including the Experimental Farms, should be in some way or other connected, and the Federal and Provincial Institutions should be so brought together as to feel themselves part of some great system, co-operating in some way.

He would like to see the Government of Canada give agricultural education in the Provinces the same support as the Federal Government of the United States gives agricultural education in the various States of the Union, which would not have been able to do the work they have done but for Federal support. He did not mean that our educational institutions should come under Federal control, but in some way there should be Federal co-operation. There should be a closer connection in all these matters. He cited the fact that the

Federal grant in the U.S. had been increased from time to time, as evidence that the plan is working well there.

The College has students from five different Provinces, and these outside students were not paying a sum equal to the cost to the Province of Manitoba of the average student; although outsiders pay a higher fee than the Manitoba people, it does not compensate fully. To some extent Principal Black regarded agricultural education as a national matter.

The School Inspectors of the Province had nearly all attended a summer Teachers' Course at the College.

The College was built from funds provided by the Provincial Government, which entirely maintained it. Manitoba students pay $10 registration fee for the winter course; British subjects outside of Manitoba pay $50, and others pay $100. The cost of maintenance of the College in 1910 was $75,000; students' fees amount to $8,000 or $10,000, which does not include their board. The Government spent also a large sum of money in supporting the Local Agricultural Societies. The appropriation was $50,000 this year. The travelling expenses of the College staff to go into the country for extension work comes out of the $50,000. The salaries of members of the Faculty who go to address meetings in the country are paid out of the $75,000.

CHAPTER LXXVI: THE DOMINION BRANCH EXPERIMENTAL FARM AT BRANDON.

Information obtained from Mr. James Murray, *Superintendent.*

This Farm site was secured by the Government in 1888. It is two miles north of the centre of the City of Brandon, about 400 acres being in the valley of the Assiniboine, 200 acres on the north slope of the valley, and about 80 acres on the upland. The soil on the latter is poor and gravelly, the land on the hillside rather better, but considerably broken by the coulees, while that in the valley is a deep alluvial soil of great fertility, more or less broken with water runs, but most of it arable and capable of producing heavy crops. On the whole area of the farm about 400 acres are fertile land in a good state of cultivation.

The Farm Staff consists of Superintendent, foreman, herdsman, gardener, book-keeper and stenographer, and a varying number of teamsters and laborers. The Director of Experimental Farms at Ottawa each year outlines certain experiments to be carried on and in a general way directs the system of cropping the farm, so far as it is affected by the growing of certain varieties of grain for general distribution in small samples. The Superintendent is expected to initiate other experiments and submit an outline to the Director for approval, and his recommendation regarding such work has usually been accepted.

By a recent change, the Agriculturist, Horticulturist and Cerealist of the Experimental Farm at Ottawa became General Officers of the Experimental Farms and have some supervision over the work in their respective branches as carried on at each of the Branch Experimental Farms. This gives the local Superintendent the advantage of the counsel of an expert in each line of work under his charge.

Since the establishment of this Farm in 1888 the work carried on has been along many lines, including the testing of the yield and general suitability of different varieties of such farm crops as wheat, oats, barley, peas, Indian corn, turnips, mangolds, carrots, potatoes, sugar beets, millets and flax; growing different farm crops under conditions that would furnish information as to rate of seed per acre, depth of sowing, effect of one crop on succeeding crop, use of different fertilizers, use of selected as compared with unselected seeds; testing grasses and clovers to find out varieties most suitable, how to grow them, rate of seed per acre, effect on condition and fertility of the land as shown by subsequent crops, tree growing, testing varieties, methods of planting, rate of growth, value for shelter purposes, testing varieties and methods of growing various kinds of vegetables, small fruit, plums, crab apples, standard apples; feeding cattle, best ways to feed, and if cattle can be properly fattened outside during winter; crop rotation, testing various rotations as to economic value, costs of growing such crops as corn, clover, alfalfa and roots, use of silo in Manitoba, effect of different rotations on soil fertility, miscellaneous experiments with poultry, feed, flowers, etc.

The crops produced on the Farm are mainly fed to the stock. A considerable quantity of oats, wheat, barley, etc., is sold for seed every year in lots from 2 to 5 bushels, and this has done a great deal towards keeping up the quality of grain grown through the country.

In the past, large numbers of trees and shrubs were propagated and distributed free in small lots to encourage the growing of trees to test their hardiness, and this had good results, but in the opinion of the Superintendent there is little reason now for the Farm to continue that work.

The results of the experiments carried on at the Experimental Farm reach the public through the Annual Report and through short reports in agricultural and weekly papers, through Farmers' Meetings attended by the Superintendent, chiefly during the winter under the auspices of Agricultural Societies. A week is usually spent at the Provincial Agricultural College during the short course in February when phases of the Experimental Farm work worthy of special note are brought to the attention of students in the various courses.

The most effective method of reaching the farmers is by actual demonstrations on the Farm while crops are growing. Of late years efforts have been made to have certain desirable crops growing where they cannot fail to be seen by passers by, the farm having been laid out into fair sized fields to test the value of various rotations. These fields of 10 and 20 acres are very practicable, whereas small plots do not impress the farmer, as they have little to do with the ordinary farm. As the Farm is located several miles from the railway there has been little effort made to run excursions owing to the difficulty of getting the people to the Farm.

The Superintendent approves of farms to be used for demonstration purposes, and would prefer an ordinary farm now under cultivation, the owner remaining in possession, rather than a small farm purchased outright and equipped for the purpose. The average farmer is shy of so-called model farms, and the term should be avoided. Arrangements would have to be made with the farmer to devote a certain area of land to the work and to handle it according to directions. If possible the whole farm should eventually be taken into the project with the possibility of evolving a model farm. The ultimate aim should be to have a Demonstration Farm in each electoral district.

The Agricultural College courses benefit a small percentage of the rising generation, but the vast majority on the farm who are past college age must be reached by the Extension Department of the Colleges, and also those not yet of college age, by showing what there is of interest in the profession and what its possibilities are. Agricultural Colleges make an effort to handle this work throughout the Province but are working under the great handicap of not having efficient organization through which to work. A system of District Representatives responsible to headquarters for the success of educational work carried on by each in his part of the Province is therefore recommended. This District Representative should have charge of the work carried on at the Demonstration Farm in his district, and should be in a position to advise farmers regarding systems of cropping, feeding live stock, securing seeds, growing new crops such as corn, alfalfa, clover, crop rotations, drainage, etc. He could also assist the local Agricultural Society in organizing the farmers for mutual benefit. Such Representa-

tives should meet once a year for exchange of ideas, and should be able to visit Experimental Farms and other institutions from which they could get ideas.

Elementary agriculture could be introduced into Rural Schools and High Schools by these Representatives. They would not all be able to conduct their regular course in the schools, because good teachers for such work are rare; but those who could not teach might be able to give valuable demonstrations outside. The Demonstration Farm could be made to serve a useful purpose in this connection, and could be made a centre for a large district and for several schools. More advanced pupils in High Schools might be organized with others into Young People's Institutes, and periodical meetings could be held on farms in the neighbourhood, thus paving the way for some of the boys to the Agricultural College, while making all better informed and more useful citizens.

The average school teacher, in the opinion of the Experimental Farm Superintendent, cannot be expected to handle the subject of agriculture in a satisfactory way. If they were, such teachers would not be content to work for the wages ordinarily paid teachers. District Representatives of the College should be better able to teach than the ordinary teacher, and could be in charge of several schools, the other work expected of them providing a sufficient salary to retain a good man for a few years at least.

At present there are four Agricultural Colleges in Canada, three of which have a long course leading to a degree in Agriculture from a University, but fully 85% of the students do not pursue their studies beyond the second year. A great majority of the 85% are continuing to make their livelihood direct from the farm. Very few of the long course men return to the farm. The Staff has to lecture to four or five classes, and a very large proportion of the time is spent for the comparatively few students in the advanced year, the work of preparing the 85% of the students being made to suffer, or being relegated to assistants for the sake of the 15% who are taking the advanced work. The long course work therefore necessitates a larger staff and a greatly increased expense for equipment, but instead of resulting in the two-year men going back to the farm more efficient, they actually receive a poorer training than if the degree course were omitted.

One cannot argue against a thorough training in the science of Agriculture, because trained men are urgently required as leaders and to carry on investigation work; but Superintendent Murray thinks it a pity that this training should be given in Agricultural Colleges to the few, at the expense of the greater number, and at such great cost to all the Provinces. All the Colleges are trying to keep their staff and equipment to the point where they will be efficient, yet no staff is as strong or equipment as complete as it should be for the best work. There is room for an institution for advanced research work in agriculture, and where post-graduate work could be taken up by graduates of Provincial Agricultural Colleges, and if such an institution were available less time need be given at the Provincial Agricultural Colleges to advanced teaching, and the short course men could be more thoroughly trained and sent back to the farms more efficient. The research work need not overlap that of the Colleges, but could begin where they leave off. Only graduate students would be enrolled, and work with them would not interfere with that of others as the teaching of the senior years does now in the ordinary

college. Agricultural College staffs are constantly in need of recruits; and men turned out from such an institution where a thorough training could be given would be valuable. Many of those on the staff of Agricultural Colleges are men with no more training than they are trying to give their own pupils. Some few who remain diligent students all their lives are able to do their work effectively, but many are content to master very little after their own College course is completed.

The equipment and staff of the Central Experimental Farm might be made to serve as a nucleus for such an institution as that just outlined. For field investigation work the Branch Experimental Farms now established would be a useful adjunct.

SASKATCHEWAN.

CHAPTER LXXVII: AS TO EDUCATION.

SECTION 1: THE DEPARTMENT'S WORK.

Information obtained from MR. DUNCAN P. MCCOLL, *Deputy Minister of Education for Saskatchewan.*

There are about 2,250 teachers employed in Saskatchewan. They are required to have Normal training, but a permit may be given on application of the trustees. In that case the Department issues a certificate on satisfactory evidence of scholarship, on the recommendation of the Inspector as to the teacher's qualifications.

The law calls for compulsory school education from 7 to 12 years of age, with penalty attached for non-attendance for a certain number of days in the year; but the regulation is not well observed throughout the Province, owing chiefly to the scarcity of labor causing demand by parents for children to help in farm work.

Districts are sustained by local taxes and grants from the Department, the Government granting $350 to the average district school that is open 210 days, also giving supplementary grants, in all about half the total cost. The School Trustees fix the teachers' salaries. Normal School fees are $5, $10 and $15 for 1st, 2nd and 3rd classes respectively. The Government grants High Schools $1.25 per day, and Collegiate Institutes $1.50 per day for each teacher employed. Other grants are $200 to High Schools and $300 to Collegiates on a basis of equipment, apparatus, etc., a further grant of $150 to High Schools and $200 to Collegiates on the basis of inspection, and a further $100 to any Collegiate Institute that maintains a commercial course with a qualified teacher in charge.

No action has been taken by the Department in regard to Manual Training. There is an agreement between the City of Regina and the Department that a certain amount shall be paid for those who take Manual Training and Domestic Science in the Normal Course. The teacher of Domestic Science does not get a grant from the Department and no grant is given for equipment. The Deputy Minister would like to see a change in that respect, and thought a grant would encourage those subjects. He believed that if pressure were brought to bear on the Department some action might be taken; sometimes he thought it best for the Department to wait for pressure.

On account of the marvellous development of rural schools in Saskatchewan the Province had had special difficulties, having since 1905 established a school district per day. The number since the beginning of the year to Nov. 11th (1910) having been 260, the energies of the Department had been devoted chiefly to the rural schools.

Normal School students do not get any chance for training in connection with agricultural occupations, except occasional trips to the Experimental Farm. The Agricultural College in Saskatoon is not far enough advanced to do any Normal School work.

The matter of School Gardens has been discussed, but nothing has been done, and travelling instructors have not been employed to look after School Gardens or Domestic Science. There is a provision in the law for Nature Study but Mr. McColl did not know of any place where it was being carried out.

Only two places in Saskatchewan have Manual Training and Domestic Science —Moose Jaw and Regina. There is an arrangement between the Regina School Board and the Department for instructors in Domestic Science and Manual Training to give training in the Normal School in those subjects on certain days.

The Deputy Minister thought it would be possible and advisable to have in the High School an Industrial Department and that both the industrial and commercial courses would be entitled to a teacher's grant from the Department, but the local schools would have to be left to work out the plan. He thought a two years' industrial course, the same as the commercial course, would be advisable, but was unable to say whether the impulse should come from the locality or the Government as he had not looked into the matter sufficiently.

The Minister of Education and he himself had visited several places in the Province and almost without exception local trustees and members of town councils brought forward the question of a commercial course, making no mention whatever of Manual Training or Domestic Science. Personally he was emphatically in favor of Manual Training, had taken an active stand in regard to it and would like to see some special certificates granted by the Department to those qualified to teach Manual Training and Domestic Science. He did not know that a grant to the commercial course was to prepare boys and girls for specific industrial occupations; he thought it was done to improve the condition of affairs that existed in the provincial status of the commercial end of the work. He thought that for the same purpose it was equally important that Manual Training and Domestic Science should receive the same recognition as the commercial course. Even if those subjects were rated as cultural and not industrial subjects, he thought they should get equal recognition, but so many other things were pressing that that subject had not received the attention and prominence it otherwise would have received.

SECTION 2: THE NORMAL SCHOOL AT REGINA.

Information obtained from Mr. Thos. E. Perrett, *Principal.*

There is an arrangement made between the Department of Education and the Regina School Board by which the male members of the class receive half a day a week in Manual Training, using the material and equipment provided in the city by the Public School Board. The Normal School has a very small plot which it is trying to use for Nature Study. The Education Department, which sustains the Normal School, uses the equipment and staff of the city schools for practice and observation work and pays for it.

The students of the Normal School very rarely come with any knowledge of Nature Study, Domestic Science or Manual Training; there are a few such who come from the Eastern Provinces. There is very little to prevent the students from coming in a body for two weeks and taking a special course in those subjects, but there is a certain feeling that teacher-training costs a considerable amount, and that the profession is being used as a stepping stone to something else, hence there would probably be some restriction to increasing the course of training, particularly when teachers did not want to use it in their life work. It would be a great advantage if this Province did as Ontario does now—pay the travelling expenses and board of teachers coming for special courses in those subjects. A great many teachers would not begrudge the time and it would be a useful supplementary course.

The Province requires the teachers to have Normal Training in order to hold certificates, but the Normal School with its equipment is not able to turn out nearly enough teachers for the Province. The schools are increasing so rapidly and teachers leaving the profession so constantly, that the supply cannot be kept up.

Teachers are being trained here for communities that are non-English. Most of the work is purely academic and not professional. Those teachers are in different buildings and under different management, but they associate with the Normal students as much as possible; lack of facilities prevents the Normal School from giving them the amount of practice they should have; a practice school would be an advantage, not only to the teachers, but also to the schools they will teach. A proper course of Nature Study would have a beneficial effect on the country.

The Ruthenian School for Teachers is supposed to be connected with the Normal. There is an average of about 20 attending, their ages running from 16 to 30. They are taught in English. Some of the more advanced ones took charge of schools through the past summer. They are good earnest students and work very hard. On account of the scarcity of teachers those people often pay large salaries, as men will go on that account, particularly during the summer months. They are chiefly half-year schools.

The Normal School turns out teachers for first, second and third class certificates. The salary in the rural schools is from $50 to $75 a month; $60 to $65 is the average. The teacher's board runs from $16 to $19 a month in the rural districts.

SECTION 3: PUBLIC SCHOOLS AT REGINA.

Information obtained from Mr. Elton B. Hutcherson, *Superintendent of Public Schools.*

There are 34 grade teachers, 2 kindergarten directors, a Manual Training supervisor, a Domestic Science supervisor and a Music and Art supervisor. The total pupils attending a Manual Training centre is 200, and the cooking centre 85. The supervisor of Manual Training directs the teachers in his teachers' meetings; they then carry out his instructions in the class-room under his supervision.

The Art teacher takes color work and designing, the Manual Training instructor taking constructive work.

These courses are doing much for the boys and girls of this city, but are necessarily elementary. It is felt that industrial work should be introduced in the High School, supplemented by a Trade School, for the great mass of boys who cannot go to High School, but who should be given a trade training in order to bring their earning power nearer to what graduates in the professions earn. It is felt that in this way, and in this alone, labor will become more dignified, and then, as skilled labor takes the place of unskilled, and the masses are properly educated, there will be universal education in its true sense.

The effect of the hand-and-eye subjects has been beneficial not only on the progress in studies, but on the discipline of the schools; and the results in examinations in grade 8 have been such as were never reached before.

Returns made under the compulsory education system show that 310 fathers are connected with work requiring industrial education, 87 requiring agricultural education, 251 requiring commercial education, and 80 requiring special technical education; while the occupations of 1,001 mothers require training in the household arts and sciences. The present educational facilities provide adequately for, and tend to direct towards, the occupations of the 80 professional men, but for the others industrial, commercial and agricultural instruction is needed, which at present is entirely lacking, except the Manual Training and Domestic Science started in the Public School, which cannot be said to be trade education.

This condition of things, in the opinion of the Superintendent, has to do with the feeling of reluctance on the part of children to follow the occupations of parents. The drift of modern collegiate education is academic and tends to make teachers and professional men. Somehow an idea has got into the minds of the boys that the trades are not dignified enough, therefore when their parents cannot send them to the Collegiate for professional training and they cannot learn a trade, they drift off to occupations such as messengers, drivers, barbers, etc. There is a certain period when parents do not know what to do with boys and they themselves do not know what to do, but it would be possible under proper guidance to direct them to certain trades, and many fellows would go to school longer if they saw an attraction in the school work. 50% of those entering grade I in the Public School failed to reach grade 8, which shows that some other school is necessary besides the Public School and Collegiate Institute. 60% of those in the three upper grades 6, 7, and 8 failed to go on in the High School. At present there are 312 pupils in those grades and 120 pupils in the Collegiate from the City of Regina. In many cases there was actual necessity for boys to leave school, but is not a good thing for the State to have children leaving before 12. In the case of those leaving because they did not like school, the Superintendent thinks a little manual activity would have kept them, and parents would have been willing to leave their boys at school.

The School Board has medical examination of all the pupils and the system was fairly satisfactory when the population was small; but it is found that now it would be more profitable to follow up the children, because nothing is done by some parents on account of poverty or carelessness, etc.

Regina has expended for school structures, within three or four years, nearly $450,000 altogether. There was no opposition to the by-laws for raising the money, and the Collegiate by-law passed with a vast majority. The Collegiate was finished about a year ago, costing between $140,000 and $150,000.

The compulsory education act is in force in the Public Schools requiring attendance between the ages of 7 and 13. Cases are brought before the truant officer, and without exception all parents have sent their children, and no case has as yet come before the magistrate.

SECTION 4: MANUAL TRAINING AND INDUSTRIAL ART.

Information obtained from MR. LINDLEY H. BENNETT, *Supervisor of Manual Training, Regina.*

The boys and girls, in all the grades up to grade 6, get Manual Training, and the boys from grade 5 upwards get Manual Training and bench work, grades 5 and 6 overlapping. Girls get sewing, Nature Study or Domestic Science in grades 5, 6, 7, and 8. There is no training now for the boys of the Collegiate, though it was given there for two years and the boys profited by it. If Manual Training were given all through the Public Schools better results could be got from the boys in the Collegiate, for they could do the work that properly belongs to their stage of development, which otherwise they cannot do. While that work would not qualify them for industrial life, it would give them the start which they need. It makes the boy more competent when he begins industrial life. It is a preliminary; the boy who has not got it is at a disadvantage.

The Supervisor told of his experience in England where Manual Training was so popular in evening classes that the teacher used it as a whip; if the students did not attend the other classes they could not go to Manual Training; it was a sort of reward for attendance at the other classes. He thought classes of that sort could be made to appeal to the young fellows of Regina if there were proper buildings and equipment.

He had put in a good deal of time with two other men in organizing the Guild of Handicraft in Regina, and there was a great liking for it, and many took advantage of it to make things to improve their homes. There were a good many applications from the art side for designing, woodcarving, etc. He thought what was more needed than a trade school in Regina was a school for subjects that would help men along lines of that sort.

There is no attempt in the Normal School to give students enough Manual Training to enable them to teach it in the schools. They attend for such a short time, and are of such different capabilities, that it is difficult to know what to do with them. The Superintendent's plan is to furnish them with a certain line of experience in things, something they have never had before, how to handle something from start to finish, trying to get them to think it out and work it through to a finish, so that they will be able better to interpret conditions of workers and of elements. A short course of 40 full days one after the other, would be nearly equal to 40 half-days spread over a year, if teachers were picked and had natural

talent that way. Manual Training, in order to catch the teaching body, would have to be in the Collegiate Institute, where the teachers get their academic training, because many of them do not go through the city schools, but come from the country. If Manual Training were in the High School and Collegiate, teachers would be almost as well able to teach that subject as geography or history.

SECTION 5: DOMESTIC SCIENCE IN REGINA SCHOOLS.

Information obtained from Miss Joan Hamilton, *Supervisor of Domestic Science.*

About 150 girls have sewing every week in the 5th and 6th grades, and all the girls in the 7th and 8th grades get cooking. Miss Hamilton, who is in charge, gives a half day weekly to the Normal School but the class is so large that it has to be divided into two parts, hence each pupil only gets a half day every two weeks in cooking. This can only be of use to them in their own personal experience and in influencing homes connected with the school. They are taught the value of food and then allowed to cook something, and then they pay attention to serving, hygiene and physiology.

A woman may be an expert sewer and yet unable to teach children. A dressmaker in town began evening classes, but her class has disbanded because she had not the power to impart her knowledge. A teacher must have knowledge of the child's nature, a thorough knowledge of the work itself, and then the power to impart that knowledge and to relate the whole to the practical work.

Classes for adult women in the evenings were held last year. The nutritive values of food is the part the women ask for. At first they wanted to cook something new and fancy, but before leaving the classes they wanted to get the other work. Now that the children have had two years' instruction during their school days in these subjects it is taking hold of the parents more.

Miss Hamilton thinks that Domestic Science should start in the 6th grade as the average child might finish with the 8th grade; but she would like to give girls of 16 years of age practical housekeeping in all its details, with responsibility for buying and cooking, the laundry work and decoration of the home, plain sewing and garment making, with special emphasis on proper cooking of food to sustain strong, healthy bodies. She would carry the work into the Collegiate.

With the cooking and plain sewing she would like to have a three year course.

SECTION 6: PUBLIC SCHOOLS AT MOOSE JAW.

Information obtained from Mr. Joseph W. Sifton, *Superintendent of Schools.*

Since March 1910 the pupils in the Public Schools have been beginning in grade 1 with plasticine and raffia, sewing and cardboard work, then woodworking, carving, rattan and basketry. They will probably begin woodwork with grade 5 and continue it to grade 8. They have woodwork at benches the last three years. Sewing is taught in all the grades from 2 up, and it is being tried in grade 1.

A room is being equipped in the Collegiate for both Domestic Science and Manual Training. Some boys and girls who are only average in other work do Manual Training and sewing even better than many of those who are brilliant and bright in other subjects. Some flower work is done in pots in the classroom by the children, and there is a certain amount of Nature Study given in all grades.

There are 210 pupils at the Collegiate, probably 20% coming from rural districts and outside towns. There are no fees whatever,. That is a condition of the Government grant. Attendance is 90% in most rooms and it has been as high as 98%.

After the woodwork at benches there is iron work, the aim being to train teachers to teach Manual Training as well as they could teach geography. A boy going into the car shops would get no particular training for that sort of life.

Superintendent Sifton thought it possible to introduce an industrial course parallel with the commercial, and it would be advisable and useful if proper support were given to it by the Government, the expense being a consideration.

A few have spoken about night classes for the men in the C. P. R. shops who would like to get further training, but there are no evening classes in Moose Jaw now.

The proportion of children of school age enrolled is practically 100%. This is attributable to good teachers, attractiveness of the schools and compulsory education. The Government pays a very small proportion of the cost of all the schools.

There is no grant whatever to Manual Training and Domestic Science. Teachers in those departments are not given any standing in this Province. That is not a desirable condition, in the opinion of the Superintendent. Teachers in those branches should get more recognition than others. He believes those subjects are excellent, but public opinion along that line is just beginning to develop.

SECTION 7: PUBLIC SCHOOLS AT SASKATOON.

Information obtained from Mr. Herbert H. Smith, *Superintendent of Public Schools.*

There is no Manual Training, Domestic Science or Nature Study with School Gardens in Saskatoon, and the Board is not thinking of making provision for them in the present buildings, as they find difficulty in providing accommodation for the ordinary class-work. There is no gymnasium in the school and no physical culture except in the ordinary class-room and usually a very short time is given to it.

Attendance is compulsory. A truant officer was appointed last September and found plenty to do, as much because of indifference of parents as from the fault of the children; perhaps half a dozen cases have come under his notice where poverty was the reason.

The Board advertised that it would open night classes intended to emphazise the commercial course, if 15 applications were received, but only 5 or 6 applications were made and the plan was dropped.

Fully half of those who pass the entrance examination enter the High School; but from 60 to 75% of the pupils never try the entrance examination. The children who leave early are engaged in some work, but the Superintendent did not think a boy is fit for industrial activity at 13 years of age.

SECTION 8: RURAL SCHOOLS NEAR SASKATOON.

Inspector Joseph E. Coombs, whose district is North East and West of Saskatoon told of a school at Warman, 30 miles from Saskatoon, where the teacher, Mr. McNaughton, has been very successful in experimenting with the growing of trees from seeds and also with the growing of wheat. He selected 1,000 grains of wheat and got the pupils to plant them in a plot, each pupil having a plot and the tools necessary for working. The largest seeds were planted, then the next largest, then the smallest. When the crop was estimated, the largest seeds produced the healthiest plants and the largest yield, the next largest the next best yield, and so on. He also planted potatoes and vegetables. They also have flowers around the school. That work did not interfere with the progress of the school, which was well up to the average. The inspector considers it the very best experience the children could get, because the majority of those attending the Public Schools to-day will be on farms. That work will enable children to understand farm problems better. It could be kept up for six years. Many of the schools have done that kind of work.

The farmers around Warman were very much interested in the work, visited the schools quite frequently, and are adopting some of the methods used at the school. Such work brings contact between the school and the home.

In West Hope school the teacher is taking up sewing classes, both boys and girls being taught to sew. This is carried out without much expense, and with no equipment. Excellent work was done. It would be a great help to the bachelors; they see the samples of work done by the pupils. Quite a number of older boys and girls go to the school, some seeking professions, others going back to the farm.

If there were some special provisions in the Collegiate for carrying through the Nature Study of the School Garden into Agriculture, and also into Domestic Science, it would induce farmers to send their girls to the Collegiate for better training.

SECTION 9: PUBLIC SCHOOLS AT PRINCE ALBERT.

Information obtained from Mr. Joseph A. Snell, *Principal, Collegiate Institute.*

The Collegiate Institute cost about $100,000. The High Schools of the Province are organized along one general line, according to the plan outlined by the Education Department, primarily to prepare for professional life. There is no preparation in them yet for agriculture. The High School is doing laboratory work for the scientific side of agriculture, engineering, etc., not for the strictly

vocational side. It provides for a good deal of laboratory practice in science. Children require to gain truth from the concrete as much as possible, and to give expression not only in words but by action. The laboratories are established so that the children may see, feel and handle, for the purpose of impressing the truth upon their minds. When Domestic Science is established a great deal of that work will no doubt be done right in the chemical laboratory.

There is a natural tendency on the part of boys to want to do things; and one reason why our boys are not in school is because the courses for which they have liking are not provided. Principal Snell has found not only here, but in other places, that boys would make progress in courses suitable to their tastes and ability who would not make headway in book-studies. Many fellows would be lured on to attend the High School if they had a chance of working in a shop similar to a laboratory.

As Inspector of Rural Schools, Principal Snell had found one great weakness with the system to be the lack of teaching Nature Study. There is a course outlined, covering the ground pretty well, though out of 400 or 500 teachers whom he had examined in the Province, he found not half a dozen who are doing that work satisfactorily, and thus laying a foundation for agricultural work. The trouble is that the teachers are not prepared, and do not know how to start at these things, so they simply leave them, or else what they do is done mechanically. He thought it very important that the Province of Saskatchewan provide for that work, for it must be an agricultural Province; and if Nature Study with a School Garden in connection received proper attention, students who leave the Public School would appreciate the extension lectures given by Professors of Agriculture from the University, which they cannot understand now.

Another thing the Government should do in connection with the High School is to appoint some person from the Department of Agriculture, who is competent to give instruction to the pupils of the High School and also to others who would come in, though they had not passed their entrance examination to the High School, and who would wish for a few months' instruction in scientific farming. In the High School they could receive fundamental instruction in English, elementary book-keeping and elementary political economy, and have the laboratory to work out their problems. The Government should bear the expense of that teacher, as is done in Ontario.

In order to train teachers to carry on Nature Study work, the course in the High School should be modified, and greater attention given to that study in the Normal School; but the term in the Normal is now too short to give adequate attention to Nature Study. A teacher who has had opportunity during his own school days of getting that instruction could carry on Nature Study just as well as geography. As things are going now, Principal Snell did not expect to see Nature Study taught in the rural schools, but he thought it should commence in the elementary classes and go right on. If it were once in reasonably well, it would fit in exactly the same as other subjects. The emergency would have to be met by special effort, and a modification of the High School course would be necessary, the teachers being prepared in the High Schools. Drawing, written descriptions

and Nature Study teach pupils close observation, and also give them training in expression by doing things with their hands.

Quite a proportion of pupils do not go to the end of the Public School, and unless they receive there some training on concentration of thought and relation of thought to action, they are handicapped when they go out into the world. Frequently the reason they leave school is that they have taken up work outside that they cannot get in school. They are interested in machinery, or want to work with their hands.

An evening school was conducted two years ago, but last year and this year, when it was opened, only two or three presented themselves. An evening school where boys could use tools, would doubtless appeal to a great many young fellows, as they would be able to study the things in which they are most intensely interested.

DRAWING AS AN AID TO BOTANY.

Mr. Henry F. Perkins, Science Teacher in the High School, who takes botany, chemistry, agriculture and physics, uses drawing to good advantage in his teaching. In botany he gets the pupils to handle the specimens and then make a drawing. The pupil gets the power to express himself in that way, and also the power to see and observe the forms and put them on paper. Afterwards he can express them in words; when need for the word arises it is brought out by suggestion. That kind of botany could easily be taught to a child eight years of age without using any technical terms. The child should begin to outline the plant form in Nature Study and do it very nicely and accurately, and thus make more progress when he came to systematic botany later.

Perhaps the distaste for botany arises from the difficulty of memorizing names, but he had found children from 10 to 12 usually quite susceptible to the study of plant life, which would be helpful to the boy who was to be a farmer. Botanical work in germination could lead a boy right along in agriculture, and he would get a very fair knowledge of how plants grow by experiments he could make. In his own work he had shewn the sprouting of the pea, bean and corn, growing several leaves without anything except water; then shewing that it would not sprout without air; shewing the function of the leaf, how it feeds and breathes—knowledge which very few farmers have, but which would assist them in their work.

CHAPTER LXXVIII: THE UNIVERSITY OF SASKATCHEWAN AT SASKATOON.

Information obtained from Mr. Walter C. Murray, *President.*

The University Act was passed in 1907; the Faculty of the College of Arts and Science began in 1909; and the Agricultural College in March, 1910, in extension work. In the Arts and Science College it is proposed to do the usual work with more provision for investigation than is done in older Universities. Probably the next College to be established will be a College of Education; after that, probably, Law, Medicine, and Engineering with special reference to Sanitary Engineering and Civil Engineering.

Extension work is being done in literary courses, also in Agriculture in connection with Farmers' Institutes and other organizations. The University will also assist in providing teachers in Agriculture for the High Schools. In case the course of the Collegiate Institutes should be modified to provide for industrial work, the University will give it the same recognition as literary subjects.

The plans of the University are based on an extension of student population to between 4,000 to 5,000 in fifty years' time, and of Colleges to meet those needs. The main purpose of the Agricultural College is to serve the boys who come for two or three years and go back to the farms. Later on the Agricultural College will have to turn its efforts more to investigation, and to the training of leaders in agricultural work. If this work is developed there is not much doubt but that in fifty years its character will be changed and much short course work will be done in the agricultural schools of the secondary grade throughout the Province.

The University is planning to train men as leaders for all the developments of the country, not simply for the learned professions. That is the modern view of the University. It is hoped to establish Departments of Domestic Science, probably in connection with the College of Agriculture; apparently those departments have succeeded elsewhere when joined with Agricultural Colleges. The Government of the Province, the Governors of the University, and the public are inclined to be generous in the treatment of the University and staff.

About $25,000,000 worth of agricultural machinery is in use in Saskatchewan, and its life is now shortened by one half, because of neglect. The University can give valuable assistance to the farmers in that matter by short courses.

The task of research is altogether too comprehensive and onerous for the Provinces unaided, and President Murray thinks that the Federal Government of Canada should follow the policy inaugurated by the United States Government 50 years ago in aiding agriculture and mechanic arts by grants.

The development of leaders is a matter contributing to the welfare of the nation; and we have a duty to the individual as well as to the State. We must give our people an opportunity to make the most of themselves. By training these leaders we are contributing to the nationalizing of the educational forces.

The Federal Government should consider that feature of it as an obligation upon themselves to aid it.

President Murray thought the obligation of the Federal Government to the individual Provinces would be better met by aid to the Provinces, and there would be a certain obligation on the part of the Provinces to the Dominion Government, to see that the object for which the grants were made were carried out. It was too much to expect the Provinces with small limited resources to carry on investigations and research work, more particularly in agriculture and pure science, which are absolutely essential for the development of these new Provinces. The problems for the chemist and the physicist are almost unlimited. The strength of a University depends on its research work, and it cannot fulfil its functions unless it devotes a large amount of energy and resources to research. This reacts on the teaching, for the man who is good in investigation is usually the most interested teacher.

The close relation between the College of Arts and Science and the College of Agriculture will permit the teacher in the former to take a certain number of classes in the latter in the third and fourth year; and graduates will then go into the country as specialists in Agriculture, and through them teachers in Agriculture can be trained.

TECHNICAL INSTRUCTION NEEDED IN SASKATCHEWAN.

The Council of the University of Saskatchewan submitted a memorandum showing the need of technical instruction in that Province for the farmers, railway men, electrical workers, and those employed in the building trade. The railway men are a rapidly increasing group. The number of electrical workers will rapidly increase in the West; the use of electricity is increasing for lighting, power, extension of telephone and electric railway systems. As to the building trades, the demand for bricklayers, carpenters, millwrights and allied trades is great; the supply is derived almost entirely from abroad, and the absence of apprenticeship must very soon result is a very inferior class of artisan unless technical instruction is inaugurated.

The numbers and needs of the farmers overshadow all others and their need for protection and instruction is very great, for the following reasons:—

(1) The farmer in the West must learn to solve new problems, especially the conservation of moisture, and all important questions hitherto unknown to him. The weed nuisance which is overshadowing him is important because of the large acreage tilled. The problem of restoration of fertility to soil, though a constant one elsewhere, is seldom considered at the present stage of agriculture in the West.

(2) Probably 25% of those who go West to farm have no previous knowledge of farming. They are artisans, clerks, professional men of various kinds who begin at the beginning without the adaptability and readiness which characterize the young. Their need is urgent.

(3) The large foreign element is doubly handicapped and, added to the difficulties that confront the Englishman or Canadian, they have those peculiar to alien language, alien customs and alien methods.

(4) The large farms of Saskatchewan, with extensive use of labor and machinery, and the business problems arising from the financing and marketing of crops, demand high intelligence, good business ability, and not a little mechanical skill in those who hope to succeed.

(5) Conservation of soil fertility, though not at present regarded by the farmer as important for his interest, is yet of very great national importance. Wise methods to-day may save millions a generation hence. The only way to persuade and enable the farmer to conserve is by educating him.

The national features of the problems of Industrial Training are as follows:—

(1) In the West the problem has been accentuated by immigration, which is a national affair, and it is incumbent upon the nation to solve the problem arising from immigration. The British immigrant no less than the foreigner has a right to expect the assistance of the Dominion in helping him to succeed in his adopted country.

(2) The conservation of natural resources is considered to be a national problem, for it lies at the very basis of trade and commerce. The conservation of the fertility of the prairies is not only one of national but also of imperial importance, for it means protection to much of the food supply of the Dominion and of not a little of the Empire. Such conservation is possible only through the enlightenment of the tillers of the soil. Their training is of national importance.

(3) The West uses Eastern products; hence the skill, intelligence and honesty of the Eastern artisan are matters of first rate importance to the Western consumer; and as far as technical instruction improves the quality of the products of the Eastern artisan it is directly beneficial to the Western consumer.

(4) Important as is technical instruction, its results are more transitory and less fruitful than those of scientific research, which lies at the basis of every comprehensive forward movement in the development of modern industry. To foster this is a national duty, the task being too great, consequently too important, to justify its abandonment to the initiative and resources of local authorities.

(5) The Dominion Government has recognized the national importance of agricultural research in relation to improvement of seed grain, and little could have been accomplished in that direction without looking at the needs and providing encouragement.

(6) What is needed now is a great institution for scientific research at Ottawa with smaller institutions throughout the Dominion, the central institution being complete and of the highest grade, the local ones being adapted to problems peculiar to their locality, and co-operating with the central institution, where tests of a national character embracing great diversities of conditions are required.

(7) It is highly undesirable to multiply local institutions if existing ones can be adapted. The local institution should be a place of research, a place of instruction and an agency for conveying to the people the information needed; and if the Provincial University would agree to undertake the work required, that would bring to it the prestige and the influence of a staff of highly trained workers,

who in turn would be benefited by the broadening of its interests and the enlargement of its sphere of usefulness. The diffusion of the knowledge of the results of research, which is essential to efficiency, may be more intelligently done under the direction of a corps of trained University men than by a purely administrative body. So important has this work become in the United States that the Federal Government has made a direct grant towards it. The most important phases of the work of these institutes should be research and instruction of the young.

(8) The question of control is a difficult one. A highly centralized policy tends to discourage local initiative and is also liable to become less responsive to local needs. The experience of the Branch Experimental Farm well illustrates the defects and advantages of a policy of centralization. Even where there is a lack of scientific training when the local representative is expected merely to test, under different conditions, an experiment well thought out by a central authority, the results are fairly satisfactory, as in the tests for seed-grain; but where the research calls for not a little resourcefulness, watchfulness and originality, as in experiments with live stock, the centralized system must fail. The ideal system should include groups of able men, scattered over the country, devoting their energies in part to local problems, and in part to co-operating with a central body. They should receive suggestions, assistance and inspiration from the central institution, and in turn direct its attention to local needs.

(9) Grants-in-aid to the Provinces for specific purposes, subject to inspection by the central authority, will secure much better results than can be obtained through a central organization attempting to direct and control agencies 2,000 or 3,000 miles distant. Such at least seems to have been the experience in the United States. It is more in the interests of national progress to develop local institutions than to absorb everything into one huge organization stirring but feebly the life of distant centres.

The memorial submits that the promotion of industrial development through technical instruction and scientific research is a national duty; that success is attainable only by the co-operation of local groups of investigators and instructors with a central body; that this can best be secured by grants-in-aid to the Provinces for specified purposes, subject to inspection by a central authority; that a strong central institution for scientific research into the problems of industrial development should be established; that the central institution should be both an agency for research and a bureau for collecting the results of research through the world.

That such a system should be administered in the spirit, not of a central institution directing and controlling a number of agencies, but of a federation of groups of able men co-operating, though in different ways, in a national undertaking, and acknowledgeing the intellectual leadership of the central institution.

CHAPTER LXXIX: AS TO AGRICULTURE.

SECTION 1: INFORMATION OBTAINED CHIEFLY FROM Mr. ALFRED MANTLE, DEPUTY MINISTER OF AGRICULTURE.

The Department of Agriculture is under a Minister and Deputy Minister of Agriculture. A great deal of assistance has been given to farmers by the Department in furnishing special speakers for Farmers' Institutes. Since March 1st, 1910, this work has been done by the Agricultural College as part of its extension work. The College is part of the Provincial University. The Department maintains a Provincial laboratory with a staff of 4 or 5 and free analyses of all descriptions are made.

Many grants are given to Agricultural Societies, the bulk of which is spent in prizes at summer fairs, horse shows, plowing matches, seed grain fairs, stock judging competitions, etc. There is also a membership grant to Agricultural Societies for a minimum of 150 members, which must be maintained annually. The Director of extension work has control of the grants, each Society furnishing detailed accounts of expenses in duplicate, one copy going to the Director of Extension Work, the other to the Department through whom the grants are paid. The grant of prize money for seed and standing grain competitions has been paid by the Provincial Government and the Dominion Government has contributed and co-operated.

Every effort is made to emphasize the educational features of competitions and to provide judges who state reasons for allotment of prizes, so that young men may learn.

Provision is made in the Agricultural Societies' grants for assisting them in conducting demonstrations in the less well known crops on farms owned by the members.

Provision has been made whereby a larger farm than the Dominion Government Experimental Farm at Indian Head, and with possibly a more elaborate equipment especially along live stock lines, will be carried on in connection with the College. The soil at Saskatoon, where the College is located, is essentially different from that at Indian Head. The latter is representative of a considerable area of the Province. It is felt that the farm at Indian Head should be maintained. In view of the size of the Province the Deputy Minister of Agriculture thinks that good would result and less confusion would exist if the Dominion Government would give the cash direct to the Province rather than maintain Experimental Farms; and that the need of Saskatchewan for either research or illustration work would be better met by grants of money to be spent under local control than by Federal control of those institutions within the Province. In the early days it

was proper that the Dominion Government should do the work when the Province could not command the services of scientists, but now there is a little clashing of effort, a little wasted energy and a little overlapping. One executive head could possibly plan a campaign better than it could be planned from the East.

Research and illustration work done by the Government in the interests of agriculture and factories would not, in his opinion, be regarded in any sense as an intrusion, provided the expenditure of the money was left in Provincial hands. He thought the assistance given by the Dominion Government should take the form of a bonus or grant as an alternative to any other form of assistance.

Help is now given, under a Superintendent of Dairying in the Provincial Department, to those who carry on dairying. During last summer a dairy demonstration train was run through the Province, giving expert instruction in the care and handling of milk and cream. In addition to that, an instructor was maintained throughout the season to visit the creameries and give the operators instruction. This work is maintained by the Province.

Emphasis is also laid on poultry and wherever the speaker on dairying goes, he is accompanied by one on poultry. In connection with the creameries Poultry Fattening Stations have been established in order to show farmers the advantage of finishing their poultry for the market. The results obtained in poultry fattening work by the use of skim milk and its products have been very satisfactory.

A good deal has been done for live stock, grants being given to all the Live Stock Associations—the bulk of the Agricultural Society grant going to the societies for that industry.

The Noxious Weeds Act is enforced by local councils in organized territory under the direction of the Inspector of Weeds, whose duty it is to see that weeds are kept out in unorganized territory. Only within the last few years have weeds become much of a problem in the Province.

The Deputy Minister submitted a memorandum as to the methods for influencing the 86,000 farmers of Saskatchewan by information and education. He grouped under three heads the existing agencies for helping and encouraging farmers.

(*a*) The Farm Press, conveying information and inspiration through the eye and printed page.

(*b*) Institute Meetings and Conventions, influencing through the ear and spoken word.

(*c*) Fairs, Plowing Matches, etc., educating through demonstration and the appeal to the competitive element.

Through the first agency (a), about 32,000 were reached, that being the number of subscribers in Saskatchewan to the farm papers of Canada. As to (b), about 7,400 were reached in 1909 by agricultural meetings, 200 of which were held, the average attendance being 37. As to (c), 70 Summer or Fall Fairs and 50 Seed Grain Fairs were held in 1909, the average number attending the former with educational motive, and spending any considerable portion of their time at the ring side, being placed at 200. At the average Seed Fair probably 30 would represent those who were more than curious or mildly interested. Eight Spring Stallion Shows were held with an average attendance of 250. Thus the total num-

ber reached through this third agency would approximate 17,500, to which may be added 2,000 interested spectators at plowing matches and about 3,000 excursionists to the Experimental Farm at Indian Head. Thus the aggregate number of farmers reached in 1909 by all agricultural educational agencies probably did not exceed 62,000 allowing for duplication. The number receiving farm papers should be reduced to 20,000, about one-third of the circulation of any given farm paper going into homes that receive another paper; the attendance at Institute meetings should be reduced by half, an aggregate of 30,000 representing only 15,000 actual farmers. A further allowance must be made for those of the 15,000 who are also subscribers to farm papers and thus included in the 20,000. While many would claim that practically all the 15,000 are readers of at least one farm paper, it may be admitted that only half of those who attend fairs, institutes and the like, take a farm paper. Thus the number of actual farmers who are being reached, in even the least degree, by any agency working for the advancement of agriculture from the standpoint of education would stand at 27,500, or about one in three of all in the Province. Considering that these mediums of help are either free or can be secured at nominal cost, the conclusion cannot be avoided that the 55,000 Saskatchewan farmers who appear to be unreached at present by educational and inspirational agencies are indifferent to such agencies and what they stand for.

SECTION 2: THE SASKATCHEWAN COLLEGE OF AGRICULTURE.

Information obtained from DR. W. J. RUTHERFORD.

This College, in connection with the University of Saskatchewan, is providing a two year course.

Meetings are conducted under the Extension Department. Short courses are planned for those in charge of gas and steam traction engines at different points, also for farmers, homesteaders and others at different places, the object being to lay out a course that can be varied the following year in order to ensure good crops and maintain soil fertility. It is also planned to hold meetings at Illustration Farms, conducted by successful farmers, and to bring people to spend a day there instead of going to the Experimental Farm.

The College has a plan for stationing a good man at each Collegiate Institute who will be treated the same as the other teachers, and it is hoped to put on a full course of agriculture in such Institutes with the best men obtainable who will have directions to look after the needs of the district, perhaps under the auspices of the College. The desire is to have teachers going into the country with fullest sympathy for agriculture. At present they do not know how to conduct a School Garden, but it is planned to give them a regular course for it.

It would be advantageous if children could get in school instruction on seed germination, conservation of moisture, etc. No difficulty is anticipated in having children taught these subjects.

Many farmers have made numerous attempts with different clovers, and perhaps most is to be expected from alfalfa, which seems to be hardier and to stay down longer than clover; it is a perennial legume and collects nitrogen. Only in the last 4 or 5 years has accurate information about alfalfa been available. The Experimental Farm at Indian Head has had several plots down four years; as they grow older they thin out, but nothing has occurred to kill them. There is no reason why alfalfa cannot be grown in Saskatchewan, although in the dry parts the yields will not be as great as where there is more moisture.

There is not much rotation in the growing of cereals. The practice is after fallowing to take one or two crops of wheat and then fallow again. In other sections they take two crops of wheat and then oats, or perhaps wheat, oats and barley. It is realized that nitrogen is being lost from the soil every year by fallowing, but nothing better has been found for conservation of moisture, which is the main element in growing crops in Saskatchewan. The main object of the fallow is to conserve moisture, and incidentally to keep down weeds.

The whole influence of the College is being used to try to persuade farmers to use better seed from the beginning and thus keep clear of weeds. The propaganda for better cultivation is having effect and farmers are managing to keep ahead of the weeds.

A great deal of instruction is necessary along the lines of management of farm machinery that could be of great service to the farmers. The students of the College will be trained along the lines of blacksmithing, sheet metal working, etc., so as to be able to take care of machinery and mechanical repairs at the right time.

In the year 1909 over $18,000,000 worth of farm machinery was sold in the Province. Many makers of agricultural implements have offered their machines to the College if the latter would install a show room.

EXTENSION WORK OF AGRICULTURAL COLLEGE.

The Saskatchewan College of Agriculture is being developed along three lines —investigation, teaching and extension work. The scope of the latter covers:—

(1) Agricultural Societies, including stallion shows and competitions in plowing, and farming, standing fields of grain, Summer and Fall fairs, seed and poultry fairs.

(2) Farmers' Institutes.

(3) Excursions to Experimental Farm.

(4) Agricultural Societies' Conventions and Provincial Seed Grain Fairs.

(5) Institutes for Extension Workers.

(6) Farmers' Clubs and Women's Clubs—District, County and Provincial. The appropriation for this work for the year ending February, 1911, was $14,000.

In 1910 there were 77 Agricultural Societies with 11,250 members. These Societies receive grants according to the work they do, the total annual grant to any one not exceeding $1,000.

The Extension Department provides judges for the stallion shows; and they award the prizes and deliver addresses on some feature of horse breeding or conduct a demonstration in judging horses. The grant is ⅔ of the amount expended in prizes, but not exceeding a maximum of $135.

In 1910 there were 39 field competitions in wheat and 3 in oats. Practically all the Societies hold fairs, the number in 1910 being 72. Besides the exhibits which are expected to be educational, other features are being introduced, such as stock judging competitions and explanation by judges of reasons for placing their awards.

In 1909 the Agricultural Societies paid prizes amounting to $49,486, the total grants to Societies being $35,543.

The Seed Grain Fairs, encouraged by the Dominion Seed Branch, have been popular from the start and have stimulated interest in the use of good seed. 66 such fairs were held in 1909, each covering 2 days. Judging of exhibits occupies the first day, on the second there are classes and competitions in grain judging in the forenoon and a public meeting for discussion of agricultural questions in the afternoon. There is a growing tendency to exhibit potatoes and vegetables at the Seed Fair, as the Summer Fair in July or August does not afford opportunity for a good display. Many Societies give prizes for exhibits of dressed poultry at the Seed Fair and one or two have exhibits of live poultry. This feature promises to become more marked in future. The grant for Seed Fairs is based on ⅔ of the prize money expended but not to exceed $65.

There is no legislation providing for Farmers' Institutes in Saskatchewan, but as it was found impossible to reach all the farmers through the Agricultural Societies, other methods have been adopted, arrangements being made with the local farmers for advertising meetings and providing suitable halls, the Department providing speakers free of cost. During 1910, 66 meetings were held in summer and 168 in winter, 143 of the total being on railway lines. In 1910 the attendance was approximately 10,296. In 1909 it was 7,245.

Perhaps the most advanced form of agricultural educational work done in the Province has been the Annual Convention of Agricultural Societies' delegates, the railway fare of one delegate from each Society being paid. The Convention and the Seed Grain Fair are held simultaneously.

A feature of work which will be extended is the Convention of Extension Workers. Speakers are wanted who understand sufficient of scientific principles regulating their practices so that each farmer receiving instruction may be able himself to correctly apply those principles to his own conditions, hence these Normal School courses for Extension Workers have been provided.

SECTION 3: AS TO FARMING CONDITIONS.

Mr. Archibald Mitchell has spent the summers since 1902 driving over Alberta and Saskatchewan in connection with forestry work and in 1906 and 1907 as Chief Inspector of Weeds in Alberta, meeting thousands of farmers every year and becoming acquainted with their problems. He stated that men have come to him again and again, and even bribed the livery man who drove him by feeding his horses, so as to get Mr. Mitchell to stop and tell them something about the

soil and how to handle it, the rainfall, the crop that they were trying to grow, and so on. They knew there was something wrong and were anxious to find out all about it. They seldom have trouble with the first or second crop. They never seem to know about the rainfall and very few know anything of the actual practical results of the work of Experimental Farms, and when told that it has been demonstrated there that it takes the rain of three years to grow two crops, they begin to open their eyes. When it is pointed out that the rainfall at Indian Head is a little over 17½" and that the farmers are lucky if they get 15 or 16", as is often the case further West, the farmers see in a moment the folly of trying to grow three or four crops consecutively after breaking or summer fallowing. The pity is that the poor fellows do not know in time and only find out after great expense and loss. Mr. Mitchell found good men from the Old Country and Ontario, educated agriculturists, opposed to the idea of summer fallowing, the trend of agricultural education in those places for the last 50 years having been away from summer fallowing as a waste of time, crop and plant food.

These men admit that summer fallowing is useful for destroying weeds, but as their land is not weedy they do not see the force of it. They come from a country where one great object is to get the soil dry enough, and they do not understand that the whole secret of tillage operations in the West centres around conservation of the moisture. Summer fallowing is no doubt wasteful, but we must follow it until our Agricultural Colleges show us some better way of conserving moisture. It is suggested that immigration literature should contain a short chapter covering the above points and thus settlers would be able to intelligently and successfully meet peculiar conditions and save many a costly mistake.

Mr. Mitchell believes that agricultural education could be brought to the people readily and with good effect through the schools. The children might not at once of themselves be able to carry out the ideas absorbed by them, but in a few years they would; and in any case, their talks with parents over the principles of agriculture taught at school would be helpful to all. Something is being done now in this direction, but it is very meagre and often erroneous, as the text books in use are frequently faulty in teaching applications of principles as adapted to other localities. A few teachers are doing noble work in this direction, but under the present system it is impossible for them to devote much time to it, and there is no inclination for teachers to specialize along these lines. Young men use the teaching profession only as a step to something else, and young women do not teach many years before being promoted to a higher and more permanent position. Moreover, the curriculum framed by the Department of Education would doubtless under present conditions make it extremely unlikely that a great deal of attention could be given to the subject.

Mr. Mitchell therefore proposes that if agricultural education is to commence at rural schools it must be done by specialists. He suggests that an instructor in agriculture visit a school at the opening hour and take the upper classes or even the whole school for a ramble through a field of grain or grass, or even over weeds or a fallow field. Before they returned he could have each pupil able to identify two or three weeds or to notice that a field was well or badly cultivated, how some soils were too lumpy and others smooth and granular, and how it was possible

by selection and care of seed to produce an even and level stand of grain instead of the ordinary one of about three different heights, etc. The school grounds could be under his supervision and much good work done in forestry, horticulture and agriculture. On wet days he could show a chart of a horse or cow and go over their different points, or even show a model of a horse's foot or lower leg, or by model and experiments show the passage of water in the soil, thus giving instruction to the children in a striking and pleasing manner, and in such a way that they could not fail to grasp and be anxious to talk about it to fathers and brothers engaged in actual farm work. The instructor could then drive to the next school and have their lesson through by noon and in the afternoon could visit a third school, and if districts were arranged so that he could go round twice a month, a foundation could be laid for agricultural education that would have an immense effect in building up the prosperity of the country. In winter the agricultural instructor could do a good deal of Institute work among the farmers of his district, and thus render a very useful service.

SECTION 4: AS TO DAIRYING.

The commercial side of creameries occupies the chief attention of the Superintendent of Dairying, but during the summer and winter months instruction is given by means of meetings. In summer two courses have been followed.

(1) To select a model dairying equipment and to hold meetings in a large tent at farm homes where the herd could be utilized in the evening for giving instruction in the proper methods of milking, separating milk and taking care of the cream, and actual demonstrations accompanied by explanations on proper methods of making butter and preparing it for market.

(2) Utilizing passenger coaches, which the railway companies very willingly supply, one free, and the other at a reasonable charge, wherein a modern creamery was installed. The meetings were very well attended, particularly by people from 25 years up, chiefly men, but quite a number of women and very few young people.

The creamery business is increasing favorably, 1910 showing 35% increase over 1909. The principal market is in the Kootenays and Victoria, B. C. In summer the local demand cannot be met. There are 13 creameries in Saskatchewan altogether.

The Department has three poultry fattening stations along with creameries. The object has been largely demonstrative, at the same time an endeavour has been made to market the birds and get a fair price. Another object was to ascertain the response of the market to a high class product resulting from grain fattening. Very few people have been keeping hens in small colony houses. The Superintendent of the Department has illustrated his talks with various model houses, and the climate is not too severe for the colony houses, the frame being made out of 2" x 2" with one thickness of lumber. One man south of Calgary with 9 hens got 5 eggs daily, and on one day got 8. The editor of "Farm and Ranch" stated that he had seen those birds when the weather was between 20 and 30° below zero and they were just as cheerful as ever.

SECTION 5: SUMMARY OF OTHER TESTIMONY.

Botany can be taught by observation and followed in words and drawing. This method is applicable to a child of 8, omitting technical terms in teaching Nature Study. In country districts agricultural botany could be introduced, beginning with the germination of seeds.

It is more important for children to learn agriculture than to learn Latin, French, Algebra and Euclid.

The Government should appoint an inspector in agriculture for the High Schools.

The ordinary young man on the farm when he reaches 19 or 20, does not want to go away to the Agricultural College.

If five men who knew Agriculture and Education, and five women who knew Domestic Science and Education, could be employed for three years, going to every country school, it would be a means of starting these things and saving a lot of time and preventing loss.

Gophers are a menace in some places for certain kinds of plants and vegetables. One witness thought a fair reason against the School Garden was that gophers came overnight and ate everything.

Small Illustration Farms under the care of agricultural societies, might show what was best adapted for different localities. If there were small demonstration farms 20 or 30 miles apart under a local directorate they would be an object lesson which would be instructive. Illustration Farms would help the young children also. The men who operate the Illustration Farms might be paid by salary or share. It would be better for the Government to own a demonstration farm; it would cost less to demonstrate, and would be done more thoroughly by the man who was there to do it.

Most of the German farmers have a great knowledge of soil tillage, though not so much of animal husbandry and the importance of pure bred stock; they need help in regard to the conditions of the country; methods have to be different from those they were accustomed to. It would help the Germans to have practical Institute work to explain matters, then give them a chance later to go to the Experimental Farm; a Government farm would impress farmers coming from Austria, Russia and Galicia more than a private farm would.

Demonstrations to get rid of some of the most noxious weeds should be started on a dirty farm. It might involve expense for additional equipment to do it thoroughly, but it would be a profitable investment. It would be a good thing to lend a farmer money for such a purpose.

Weeds are a nuisance; the worst is wild oats, because it sheds its grain previous to the wheat. It might be got rid of by summer fallowing and growing barley, because the barley would ripen before the wild oats. Common mustard is also getting bad. French weed has been a blessing in disguise in some cases, as it caused the farmer to fallow oftener.

Weeds are on the increase; returns from grain shipped out show that very clearly. A great many people are going into farming from offices and cities who really do not know what a weed is, and thus they become very abundant.

One witness, quoting Sir Horace Plunkett's maxim for Ireland, "Better farming, better business, better living", said that the whole structure of society rests on enabling the farmer to take his place as a citizen. Cities and Governments do not half realize the value of training farmers in business methods and economics of the farm for the good of the country as a whole. The farmer must have a higher ideal than a purely mercenary one.

Farmers should co-operate in selling their products.

More attention is being paid to seed grain. People are paying for good seed very nearly any price asked—from 50% to 300% more than formerly, and also becoming more careful as to cleaning seed. Seed Fairs have been a great help; standing field crops competitions have had a good influence; newspapers are doing a great deal in connection with that—more than they get credit for.

One witness, who has attended a great many Seed Fairs, said that while the old members go, the young men and children, except in odd instances, are left at home.

There are years when grain is not good for selling but would be good for live stock if properly ground. Grain not saleable could be used as food for cattle and pigs.

If more farmers went in for mixed farming they could keep their men all the year round.

SESSIONAL PAPER No. 191d

CHAPTER LXXX:
TREE PLANTING IN SASKATCHEWAN.

Information obtained from Mr. Norman Ross, Chief of the Tree Planting Division of the Experimental Farm at Indian Head.

The Forestry Branch of the Dominion Department of the Interior has a nursery station in connection with the Experimental Farm at Indian Head, and is distributing trees and giving instruction to the farmers of Saskatchewan. The system is one of co-operation between the farmer and the Department. The farmer applies for the trees; before they are supplied his place is inspected in order to see how his land has been prepared, and if in satisfactory condition he gets trees in the following spring. The farmer's views are met as to where he wants the trees planted unless his selection is wrong, in which case the Department's representatives instruct him. A rough sketch of the ground is made and a plan is sent to the farmer showing the arrangement of trees, etc., before the plants are shipped. The farmer himself does the planting. The object chiefly is to get trees around the homestead. The preparation of the land for trees would not be any more costly than for a grain crop, practically the same methods being needed in both cases. The Department supplies the farmer with seeds if desired, and the Department prefers to supply these as the farmer is thus encouraged to rely upon himself. The demand is becoming so great that the Department is cutting off men who have been given trees for four or five years and suggesting that they go on by themselves with cuttings. The Department has no evidence yet that trees can be grown except after preparation of the land as for a grain crop. The question is one of moisture. Crops and trees cannot be grown at the same time. The farmer is required to keep his plots free from weeds, the object being the conservation of moisture. Where the Department's directions have been followed, farmers have had good results, and although the practice only began in 1901 there are trees now 24′ high. Trees are planted in dry parts of the country as well as others.

The Department is encouraging the planting of trees around school houses, though they find it a very hard matter to get School Trustees to carry through their instructions. After the first meeting in January it seems quite easy preparing land for garden trees and the Secretary is instructed to apply for the trees, but in very many cases summer inspection shows that nothing has been done. On the other hand some men are doing good work in that way.

It would save a great deal of trouble if the Education Department would take up the matter and send plants to the School Trustees in new districts giving them an idea of how to lay out their grounds, etc. A good deal along that line could be done in schools. Young people absorb more information than adults and a child who knew how trees grew would get a good deal of light on how to grow wheat. The trouble is to get the trustees interested first. During the last three years a

representative of the Department has addressed the students of the Normal School in Calgary.

The Department is not able to meet all the demands received for trees. In 1910 the number of applicants was over 7,000; the previous year it was 5,285. All the land available for raising trees at the nursery station is being used. Up to the spring of 1910 the Department had shipped out about 15,000,000 trees for the three Provinces, Manitoba, Saskatchewan and Alberta.

The farmer is the most handicapped man entering the West, because of lack of knowledge of principles underlying the business. The best farmers who either farmed in Scotland or Ontario find themselves up against conditions in the West altogether different from their old ways; hence their work is carried on in the old way, and will in most cases end in disaster.

The first efforts of new settlers at tree planting are usually failures and frequently lead to discouragement because of unfamiliarity with winter conditions, hence guidance is necessary. The plan of the Forestry Branch is to supply expert advice regarding the disposition of shelter belts around the farm home, the best varieties to plant, approved methods of cultivation to follow, etc., but as advice in itself would not be sufficient to produce the desired results, i.e., a more general interest in tree planting, the Department, as already stated, supplies a certain number of trees, seedlings and cuttings to give the settler a start.

There being no question as to the advisability of encouraging tree planting, and the system followed having met with such splendid results, Mr. Ross suggests:—

(1) Increasing the facilities by establishing one or two more nurseries at central shipping points with a good supply of labor and in localities favorable to nursery work as to climate and soil, with a view to supplying the demand with good stock at lowest possible cost.

(2) That nursery agents should be controlled in some way, either Provincially or Federally. During certain seasons the West is overrun by nursery agents representing U.S. firms. These men being, in most cases, absolutely ignorant of local conditions, sell thousands of dollars' worth of useless stock to new settlers, who themselves do not know what is hardy in the country. The individual swindled is not the only loser, for he puts his failure down to the unfavorable climate, and the country, and being discouraged, he cannot be induced to try tree planting again. His neighbors, knowing his experience, are also influenced in the same way. Agents representing nurseries operating outside of the Western Provinces should be made to pay a good license and take out a bond.

(3) Much benefit could be derived by the country if tree planting and similar work could be done around the rural schools. At present failure generally results because grounds are too small and there is no system for adequate shelter belts and ornamental planting, or because there is no responsibility in a single individual, the teacher often holding the situation for only one or two seasons, usually lacking requisite knowledge and having no interest in permanently improving the grounds, while the trustees are only temporary officers and no single trustee cares to undertake all the work involved.

No school grounds should be less than two acres, though three would be better, and a bonus or some practical encouragement might be given to any schools making a successful showing.

(4) Under Provincial or Federal auspices, large plots say one half to one section (640 acres) in extent, should be planted out in such agricultural districts as are far distant from natural supply of wood. In newer districts there would be no difficulty in obtaining the necessary land, which could be reversed before settlement. In older districts it might be necessary to purchase. At Indian Head cord wood (poplar) costs $7.50 per cord and the price is annually increasing, and this point is in a better position to obtain wood than many districts farther west. The first cost of this plan would be heavy, but after some years revenue would be derived. The crop reaped from the land whilst being prepared would pay for preparing and planting. In a block of 640 acres, 55 acres might be set out each year and a similar area prepared for planting next spring, the remainder being cropped or otherwise used to bring in return. 12 years would be occupied in planting a section. If fast growing varieties such as poplar or willow were used, the area planted in the first year might be cut over in the 13th year and should realize from 20 to 30 cords per acre, after that the plantation should give increasing returns.

In newer sections not yet settled, a section in each township could be reserved as are school sections, to form a fund for carrying on the work. In older settled districts areas which are now held under grazing leases might also be used for this purpose, the land reserved not necessarily being the place for planting the trees. It might be sold and the trustees could purchase land in a more suitable location and possibly help defray planting and other expenses. The plantations after becoming self-supporting might under agreed conditions be transferred to the municipalities in which they were situated and subsequently be managed along the lines of the European municipal and communal forests.

ALBERTA.

CHAPTER LXXXI: AS TO THE ORGANIZATION OF EDUCATION.

SECTION 1: INFORMATION OBTAINED FROM Mr. DUNCAN S. McKENZIE, DEPUTY MINISTER OF EDUCATION.

The Education Department of Alberta is in charge of the Minister of Education, his Deputy and staff. The Government gives grants to schools on a basis depending largely on the area of the school district in rural parts, and on a sliding scale, based on the average attendance and the grade of the certificate of the teacher.

To overcome the tendency towards keeping schools open only six or eight months, there is an additional grant of six or eight cents per day for every day a school is open over 180 days. The Government grant amounts to probably a third of the total cost of maintenance.

On account of the scarcity of teachers for the schools that are being organized so rapidly, unqualified teachers are sometimes employed, but only in cases where qualified ones are not available. Normal training is imperative before full recognition can be given to teachers.

Some encouragement is given to Nature Study or School Gardens in the way of a special grant based on the inspector's report. These inspectors are employed and paid entirely by the Government and are required to grade all schools with respect to ground, school plots, equipment, and of nature work done in the schools generally.

What is called the inspection grant is paid with a proviso that at least one half of the inspector's grant must be expended in purchasing for the school library books selected from the catalogue supplied by the Department. The grant is not based especially on Nature Study or School Garden work, though that would tend to increase the grant. No grant has been made as yet for Domestic Science either in any town or country school; that is maintained entirely at the charge of the local authorities. Provision for teachers of Domestic Science is under consideration. The basis of a grant is not the teacher but the class, so that a teacher who held a certificate and who passed from room to room teaching that subject and nothing else would not under the present law draw a grant. This applies also to Manual Training.

The High School department receives a grant on precisely the same basis as the elementary schools and in addition $150 per year for each department. The

High Schools are not so large yet as to be divided strictly into departments. Technically, Alberta has no High Schools, and the expression "High School" does not appear in the School Act or regulations. The Secondary Schools are merely the Public School system grown out at the top, beginning with Standard 6, the promotion from Public School to High School being an examination similar to the Ontario public school leaving. The Public School has five grades, whilst the High School department takes grades 6, 7, and 8 and gives academic standing for 1st and 2nd class teachers' certificates.

The Department maintains the Normal School, which is at Calgary, no fee being charged to teachers.

There is provision in the School Act for evening classes similar to those taught in the day time, but it has not very frequently been taken advantage of, no provision having as yet been made for technical classes. Commercial courses are in the same position as Manual Training and Domestic Science; they have been introduced to some degree but have not been assisted financially.

The compulsory law requires pupils to attend school throughout the year between the ages of 7 and 13 inclusive; but if they have completed the Public School course at an earlier age they may leave.

The Provincial School Trustees' Association has been encouraged financially and otherwise by the Education Department. In a sense it was called into being by the Department with a view to supplying young people with training for occupations. The Association meets annually in convention, a large proportion of the members being farmers. It discusses questions, passes resolutions and forwards them to the Department for its information and guidance. There is also a Provincial Education Association which has been called into being in very much the same way as the Provincial Trustees' Association. It also offers its advice from its standpoint. The Department has not made provision for industrial training to any extent apart from instruction in Manual Training in the Normal School, and instruction to farmers through the Department of Agriculture.

The Deputy Minister of Education stated that, in his view, hand and eye training should be introduced in the first form of the Public School and go on through the 2nd, 3rd and 4th forms. At the 4th, 5th and 6th forms Manual Training and Domestic Science should be taken. Nature Study might be taken quite early and he thought that industrial training should be as wide as possible and under Government direction and probably maintained largely by the Government.

Personally, he strongly favored Manual Training and Domestic Science as a part of the training of the boy and girl that heretofore has been too much neglected, for the developing of construction, initiative, observation and accuracy. He thought there was a danger of children having their attention directed over too many subjects in early years and that it might be possible to teach the same things without confusing the child with the various forms of lessons assigned.

The test of pupils in their early years for promotion in Manual Training and Domestic Science should be the judgment of the teacher under the advice of the Principal. The witness considers examinations as necessary evils and would eliminate them as a final test for promotion in the junior forms, though necessary in the higher forms. If teachers were more permanent they might settle the question of pro-

motion from standard to standard, especially in rural schools, but changes of teachers are so frequent that this plan could not be worked. Home work is given in the higher forms at the discretion of the teacher, though it is questionable whether this is the kind of attention needed when pupils are deficient, as deficiency often arises from dislike of the subject, which is only aggravated by piling on homework.

The University, under the University Act, is an educational institution in Alberta, supported by the Government but not under the Department of Education, which has charge of High and Elementary Schools with provision for some links between the Department and the University.

The Public School course, before being fixed, must be outlined by someone appointed by the Department, and the course must be sanctioned by the Department and approved by Order in Council. The course is subject to regulations provided under the School Act and any changes found desirable by officers of the Department are made and approved by Order in Council. There is an Educational Council of five members to whom are submitted for approval before final adoption all regulations, lists of authorized texts etc. The members of this council are appointed by the Governor in Council and two of them must be Roman Catholics; there is no provision for any specified number being farmers, merchants or manufacturers.

SECTION 2: INFORMATION OBTAINED FROM Dr. JOHN T. ROSS, CHIEF INSPECTOR OF SCHOOLS FOR THE PROVINCE OF ALBERTA.

Mr. Ross was a regular inspector till two years ago. He had found very little interest in Nature Study work. In his inspectorate there were only 4 to 5 teachers who took any interest in School Gardens; and he thought these were mostly trained in Ontario. In general, the interest comes from the teacher who has been trained. In certain instances those who were not trained were trying to do the work, but it was unsatisfactory and without system. He found only one instance where the farmers were assisting the teacher by plowing and preparing the ground. In very few cases in his inspectorate did the farmer pay any particular attention to it. He thought it was an important part of education to be encouraged in the rural districts, but the teachers must first receive training, and thorough training. He thought it should be encouraged by a special grant, rather than by being made compulsory. He did not think it would be advisable to disqualify the teacher who is at present doing good work, but he would make training compulsory for those who are being trained. He considered that it would have to be started by School Gardens in those places where they were training teachers for the non-professional examinations, even before they had graduated from the Public School. The proper way to commence would be to have an object-lesson School Garden. The teaching of agriculture to city and town children is very unsatisfactory without a garden.

About 95% of the students who take the teacher's examination are trained in the High Schools. There are about 28 schools in which those who will be teachers

are educated. The smaller places are developing so rapidly that each year brings an increase of at least 25% in the rural schools. There is need of teaching Domestic Science in the rural schools, and there would be an advantage to the community from the children getting it. As good a system as any would be illustration schools in which the children would be taught; then such children when trained as teachers could teach these subjects later on.

Rural schools have not the accommodation for Domestic Science yet, and most of the rural communities are struggling to maintain schools for more than 8 months. Conditions in the rural communities are about the same here as in Manitoba, and it would not be necessary in a school of 15 children to wait for an elaborate Domestic Science equipment.

Mr. Ross considered there is a need for attractive evening schools for young fellows between 14 and 17. The students graduate from the public school at an average age of 15. In the towns of Alberta there should be industrial evening schools for the young fellows who have left school; it would be more helpful to them than evening schools with simply academic studies. Preliminary training would be an advantage to those who wanted to go on further.

Almost 60% of the rural schools are in session less than 9 months in the year, and the majority of the pupils never reach any higher standard than the 3rd reader; and in a rural country like this, the 3 R's are generally emphasized for those who are going out to work. These children attend very often during the winter, and in summer are taken away from school, especially among the foreign population. That is not a good thing to continue. If there were 20 illustration school gardens in the county, the young people would come in the evening if they had a good instructor on conservation of moisture, good and bad seed, etc. Most of the communities are lacking in social opportunities, and these evening meetings would afford an occasion for social meeting.

The parents as well as the children have to be interested in education. So far in the current year 219 new schools had been gazetted, without considering the increase in the cities and towns. The school buildings compare favorably with those of Manitoba or Saskatchewan. Over 90% are built of wood, and they are usually a credit to the community. The schools are superior as buildings to the people's own homes. To each district the Department sends a plan of a model school, and they follow it as far as possible. The schools compare favorably with the churches, and the ratepayers in the districts spend as much money on schools as on church construction.

SECTION 3: INFORMATION OBTAINED FROM Mr. JAMES A. FIFE, INSPECTOR OF SCHOOLS.

Edmonton is in the south-east corner of Mr. Fife's inspectorate, which runs north of Edmonton for 100 miles, and west about 130 miles. He has about 80 rural schools under his care, and inspects the city schools once a year. There are 70 odd teachers in the city and 80 in the country. Inspectors are supposed to visit the country schools twice each year, and Mr. Fife had not quite completed the second inspection that year. Not more than two schools may be visited in one

day, and inspectors are therefore kept very busy, even if the schools are fairly close together.

During the previous year 30 teachers in his inspectorate were teaching on permit, and he found a very marked difference between those and the trained teachers. The trouble with the untrained teachers is that they don't know how to begin, and so waste a great deal of time. In some districts the people are content to keep these teachers on permit, because the teacher is a resident of the district, and will teach on a lower salary. The untrained teachers are usually asked to spend a day in city schools before they are sent out to the rural school.

There are a few School Gardens in connection with the rural schools. The teacher and pupils usually dig up a corner of the school ground and get it in as good condition as possible in the spring for planting, then the children plant the seeds under the teacher's direction, and watch the germination and growth until maturity. They often have such things as carrots, sweet peas, beans, lettuce and sometimes grain. It is very interesting and useful work for the children, and Mr. Fife is usually told that it increases interest in the school subjects, and tends to make the children better observers and clearer in every way. Too few teachers take a decided interest in the School Garden—some of them because the school grounds are not fenced. A grant would be of more value if the teachers were interested in the work. Teachers could be prepared for it by a better course at the Normal School, or by summer courses at certain centres during the teacher's holiday. A vigorous policy in the High School for years, so as to give a chance to all the teachers to be more thoroughly trained, would help teachers and others in connection with Nature Study. In Mr. Fife's inspectorate the teachers who are making the most headway are those from Ontario, who have attended the Macdonald Institute at Guelph, or those from farther east.

A few teachers from the Old Country are giving not only Nature Study, but handwork in plasticine and paper-cutting and folding, as they got that work in their own schools. If teachers came through High School with that class of work they would not find any more difficulty in teaching Nature Study than in teaching geography from the map. That would be of great benefit. The way things are going now, it is hard to say how many generations of school life it would take to get around to well qualified teachers in those subjects. If we could save 15 years by a vigorous policy for 5 years it would be worth while. 15% of the Inspector's grant is given on the ground of School Gardens. A school could earn $21 on grounds and buildings; if there were well-kept grounds, the school would earn pretty nearly the full amount.

There are some communities in the district that speak very little English. The 8 or 9 schools in them follow practically the same curriculum as others. There is no difficulty in teaching them English if the teacher does not know the foreign tongue; but if the teacher speaks a foreign language, there is sometimes a difficulty, because he is inclined to give the children directions in their own language. A number of the scholars are originally from Quebec, and a number from German families. Mr. Fife had one Galician school in the previous year, which was a striking example. The teacher did not know a word of Galician, and none of the children —aged from 6 to 12—knew a word of English when they started. Mr. Fife visited

the school nine months after it was started, and found that the teacher spoke no Ruthenian, but they all not only spoke English, but read it as far as the second book. They are most anxious to learn, and remarkably quick.

SECTION 4: SUGGESTED COURSES FOR BOYS AND GIRLS.

Mr. William Pearce, of Calgary, outlined a course in agriculture for boys and in domestic science for girls that could be conducted in Public Schools, some other subjects being dropped if necessary. For boys the course should cover agriculture generally, dealing with chemistry of soil, fertilisers, etc.; crops suitable thereto, grasses, grains; plants and trees for ornament, for fruit, for protection as wind breaks; live stock of all kinds, and breeding, feeding, milking; chemistry of foods of all kinds, milk, etc.; preservation of foods so as to retain the most valuable elements; irrigation, principles and methods of application of water, amount required by various roots, plants and grains, conservation of moisture, drainage, etc.; hygiene relating to drainage and ventilation of buildings, composition and quantities of the atmosphere, retention of values in manures without rendering them obnoxious or injurious to health.

The objection being made that above subjects are applicable only to rural schools, the answer is that it would be good policy to give greater attention to rural occupations and pursuits in the curriculum and thereby to some extent counteract the present tendency to increase the urban population at the expense of the rural. The majority of the subjects, however, will prove of great value to urban citizens.

For girls, household chemistry should be taught so far as necessary for preservation, cooking and utilization of fruits, meats, grains and vegetables; instruction in gardening, vegetable and ornamental, care of lawn, etc.; hygiene relating to household ventilation, drainage, purity of water supply, etc.

Special attention should be given in any system of education to fit pupils along the line of their aptitudes, paying particular attention to the calling the individual is likely to follow, or be compelled to adopt.

Hence, wherever possible, manual labor should be adopted and extended at least to boys and if possible to both sexes, particularly in urban schools. Such training would be beneficial to all, illustrating and opening up avenues in which their talents could be utilized with pleasure and profit. The value of a thorough training in mechanical callings can be seen by comparison of work turned out by the average mechanic trained in Canada or the United States with that of those from Great Britain or portions of Europe. No doubt this training could be best obtained by a thorough apprenticeship; and Manual Training would be a good preparation therefor, as well as fitting boys to be handy men for pioneer enterprises, settlements, surveys, explorations, etc.

SECTION 5: THE ALBERTA NORMAL SCHOOL, CALGARY.

Information obtained in conversation with the Staff, chiefly from MR. H. THOMPSON, *Principal, and* MR. JAMES C. MILLER, *Department of Manual Training, Physical Culture and History of Education.*

There are 160 pupils enrolled, from all parts of Alberta and also from beyond. They are under no obligation to teach in Alberta after finishing, but nearly all teach here. Nearly half the term is spent in practical observation work and teaching. There is not time for very much academic work now, but as some of the students are very deficient in places, some instruction must be given in the subjects they are to teach. Manual Training is part of the course in the practice school and a little Manual Training is taken by the students of the Normal simply as a phase of method. The percentage of those who have Manual Training before they come is very small.

HAND WORK IN NORMAL SCHOOL.

During the term about 20 hours are devoted to Manual Training subjects, both theory and practical work, including four lectures. All students at the Normal take the Manual Training, the men having volunteered to take also a Saturday morning class for woodwork. The students do a good deal of practical work at home; but in the opinion of Mr. James C. Miller, the Director, they do not get sufficient to appreciate Manual Training as an integral part of education. Less than two per cent have had adequate experience of Manual Training before coming to the Normal. The Director's special effort is to qualify the students to take such hand work as is advisable in grades 1 to 3 up to the point where pupils take woodwork, sewing and domestic science.

In physical culture, the students do not get enough in any scientific form to enable them to teach it in rural schools. They are taught the necessity of outdoor playgrounds and also the necessity of exercises to offset schoolroom conditions.

About 90% or 95% will teach in rural schools after leaving the Normal. They will be competent to teach how wheat or a pot plant grows, how seeds germinate, and the different functions of roots, leaves, etc. There is no School Garden, but germination work is done every session in boxes; there is enough space to allow each student to have a box of her own. A very small percentage could give an account of how a wheat plant reproduces itself. If they were trained in such things before attending the Normal, much more could be done in showing how these subjects could be best taught.

Domestic Science is not taught at the Normal, and a young woman could go through without anyone knowing whether she could sew or teach sewing. If girls in grade 5 of the Public School were taught sewing, and continued in the High School and Normal School, a teacher could teach sewing as well as geography or Nature Study. It would then not be necessary to employ specialists in those subjects in the Public Schools. (A subsequent enquiry showed that about 36% of the young women in the Normal School declared themselves competent to teach

sewing in elementary schools, and an additional 19% to teach sewing if provided with a set of exercises for use in the school).

The Principal thinks Domestic Science should be introduced in the Public School and continued on up to the teachers' course in the Normal School, to some extent as an academic subject; and so with Manual Training and Nature Study.

The Normal School Staff are called out to aid teachers at Institutes in the fall term and have thus an opportunity to some extent to hear from the teachers.

Agriculture is a part of the program of study in the Public School and the first year of High School, but since it cannot be actually taught in the Normal School at present, the latter simply goes through book work and lectures on the subject.

CHAPTER LXXXII: AS TO CITY SCHOOLS.

SECTION 1: INFORMATION OBTAINED FROM Mr. JAMES McCAIG, SUPERINTENDENT OF SCHOOLS, EDMONTON.

The grounds and equipment of the Collegiate Institute cost approximately $200,000. The people of Edmonton endorse with satisfaction the maintenance of schools; the people in the west are chasing dollars in order to spend them on their children. The educational sentiment among the general body of the population is ahead of the capacity of those who should be leaders in the work to meet the conditions as they arise. Preparations are being made in the Collegiate Institute for Domestic Science, but not for Manual Training.

The Public School Board has charge of the High and Public Schools. There is a Separate School Board also. In the Public Schools from 89 to 92% of the children enrolled are in attendance, the average daily per teacher being 43 children; but changes of teachers sometimes raise this to 50 pupils per teacher.

Handwork consists of stick-laying, paper work of a kindergarten nature, cardboard construction, clay modeling and weaving of prepared and native materials (basketry) through the first six years of the school. There is bench work for boys during the last three years and plain and fancy sewing for girls in the last two years, with a course of ten lectures in home nursing and housekeeping. No cooking is established as yet, but the board will equip a Domestic Science suite in the High School for the girls in the Public School and also the girls in the High School, and give facilities for special lessons in cookery and care of the home.

Nature Study work is not carried on as yet. Nature Study would give a body of simple knowledge relating to agriculture and horticulture that should be valuable to both city and country pupils, but it is hard to take any subject that is not in pedagogical form and enable the teacher to take hold of it and see its use.

The handwork is found to be restful, strengthening and quickening for other work. This hand training would be helpful to any man whatever his occupation, because it would stimulate him by appealing to a certain set of activities that might find expression in mechanical pursuits instead of the professions, and hence it might keep those who would make very good carpenters from becoming doctors.

The Board's aim is to give efficient instruction in elementary school arts and also to have the schools suitably reflect industrial and commercial interests. Paralleling elementary hand work and Manual Training work is a carefully elaborated course in pencil and brush drawing, in which the aesthetic side is dominant, but which touches industrial work at points all through the grades and in the last two years is in close relation to bench work through mechanical and scale drawing.

The High School now gives only general training chiefly for preparing teachers and matriculants. Some agriculture associated with botany and a little ele-

mentary book-keeping can scarcely be said to have vocational significance. The Board does not think any kind of industrial or technical course can be successfully incorporated with the High School; but there is a necessary cleavage in institutions which might serve pupils who have reached High School age, one being preparatory to higher institutions of learning and the other a technical school for vocational training combined with general culture and improving subjects.

The Board doubts the advisability of continuing into the High School the general Manual Training course of the Public School, which means a different kind of education, both in material and experiences, induces a different set of reactions, and awakens or stimulates a different set of activities from those connected with the formal studies. Manual Training enlarges the chance of pupils for choosing suitable vocations, and if this is its right office its work as an instrument for general training seems to be completed in the common school; if pursued in Secondary Schools it should be associated with technical and mechanical courses having vocational purpose rather than in conjunction with the literature, arts and science of the High School.

With regard to the method of instituting technical training, the more local this work can be made, the more efficient it will be in answering local industrial needs and also as to administration, which will be the better for industrial interests the more it is decentralized.

There is no Manual Training in the High School, the judgment of the Board being that the beginning of vocational work should be distinct from the general work of the Secondary Schools; and as a direct part of High School administration vocational work of a close and specific sort could not be incorporated into the High School course. There would be many boys, however, who would very gladly welcome some mechanical course in the High School because of distaste for so-called "formal studies"; and some would be helped into a higher efficiency by such a Secondary School. There is no great demand for that sort of thing, however, and it might develop through the contemplated evening school, if the course included drawing and mechanical work of some sort.

AGRICULTURE IN HIGH AND PUBLIC SCHOOLS.

Agriculture as a school subject might be viewed in three ways:—

(1) As Nature Study to stimulate an interest in matters constituting the natural and perhaps also the industrial environment of the pupil for the sake of creating an attachment for country things and country life.

(2) As direct training in the practice of tillage, growing of crops and caring for animals.

(3) As growing out of geography into parts of other sciences, and hence a subject of general training.

In regard to (1), the absence of organization of Nature Study as a subject of instruction has led to its being dealt with in rather an erratic way; and the training of teachers has not given them the right attitude to it.

Where an attempt has been made to deal with agriculture as a vocational subject, the work has been found quite fragmentary and ineffective, for agriculture is an applied science dependent upon half a dozen nature sciences and covers so much ground that the fixing of its scope in the elementary school is rather difficult. In any case, it is not the office of the common school to make farmers or perhaps to give specific vocational training of any kind.

Agriculture being an applied science, i.e., an art with science as its basis, it should be taught objectively by interesting demonstrations inside and outside of the school, in short, by laboratory methods. There is a little book on agriculture at present in the High School course; but the subject does not receive any of the laboratory treatment belonging to the natural sciences, although it should really receive more. A Committee now at work on the program of studies intends to continue it as part of the obligatory course for teachers and to put it into the third year of the High School course, and to vitalize the subject by right teaching, so as to give teachers the proper training and attitude to it in dealing with Public School pupils. It is also hoped that the Committee may influence the Normal training of teachers, so as to increase their fitness for efficient rural work. These changes in the Public School course itself and the improvement in the training of teachers will put the teaching of agriculture on a rational and effective basis.

As to the value of agricultural teaching for vocational purposes in either the Public or High School, it would seem that this is a matter outside the scope of these schools, and that such work, in order to be useful and effective, must be made to belong to the Trade School branch of education.

SECTION 2: INFORMATION OBTAINED FROM Mr. FREDERICK CARR, PRINCIPAL, EDMONTON HIGH SCHOOL.

185 students are enrolled, 20% from outside Edmonton. A large number of the students are preparing either for teaching or for the University, and some leave at the end of the first year to enter business.

Those who have come in the last 2 years from Edmonton schools have had Manual Training in their Public School days; those who come from the country have not had anything of that kind. There is a general difference between these two classes in regard to readiness to go on with science work. In many cases those from the country are found better fitted for cramming; apparently the training they have had in the country was to rely upon their own efforts, especially for cramming; but pupils who have had Manual Training and have been working with others are better equipped as social factors in the schools.

Nothing compulsory has been done in the way of Nature Study, but the Principal has taken pupils to School Gardens and directed their efforts along observation lines. The Principal thinks it wise to adjust the subjects of Manual Training and Domestic Science to the High School just as far as the Board is doing. Nature Study is now a part of the studies, but the other is not recognized. This year only one pupil expressed the desire to become a mechanic, and he left school and became apprenticed to a carpenter.

SECTION 3: INFORMATION OBTAINED FROM Mr. GEORGE A. McKEE, PRINCIPAL, STRATHCONA PUBLIC SCHOOL.

The Public School does High School work in standards 6, 7, 8. At present from 15% to 20% of the pupils come from outside Strathcona from farm houses or outlying points. Most of the pupils seem to be aiming for the teaching profession; some attend just for the Public School training; some intend going to the University; and others use the High School training for business purposes.

Nature Study and School Garden work might be done by the science master for those who are to become teachers. All through the Public School course from standard 1 there is Nature Study; but in the lower classes it is taken in conjunction with home geography. At standard 4 teachers are supposed to teach the care of horses, cows, etc., but in many cases the pupils know more than the teacher does. In standard 5 there is a text-book on agriculture, which is an examination subject. Then in the first year of the High School, botany and agriculture are combined; and that is as far as the Nature Study goes in the school system at present. A student who had taken it all would not be competent to teach Nature Study in the country schools. Enough Nature Study and Domestic Science could be given in the High School to enable them to teach it if the grades were properly outlined and if the instruction were given in the Public School also; but the bulk of the teachers for that work being trained only in the High Schools, the latter is the place for such training. The majority of the teachers do not go to the University, so it would not be advisable to do such work there.

SECTION 4: INFORMATION OBTAINED FROM Dr. ARTHUR M. SCOTT, SUPERINTENDENT OF SCHOOLS, CALGARY.

The system consists of a High School and ten Public Schools under the control of an elected Board of five members. There are 8 High School teachers, 76 Public School teachers, and 7 supervisors and teachers of special subjects, under the direction of a Superintendent appointed by the Board. While the courses of study are in the main prescribed by the Department of Education, the City Board has organized a Commercial Department of the High School; Departments of Manual Training, Household Science and Physical Training in the Public School; and placed Music and Drawing under the direction of supervisors, no provision having been made in the school ordinance for these things.

The Supervisor of Drawing instructs and supervises the work of teachers of junior classes and instructs the classes of higher grades. Freehand drawing, with some color work closely correlated with the various subjects of the course, especially the Manual Training, constitutes the bulk of the work done.

In Household Science, the girls of standard 3 have sewing lessons once each week, while the boys take elementary bench work one hour a week. In standard 4,

both junior and senior, the girls have a lesson each in cooking and household economics, while boys have more advanced woodwork with elementary mechanical drawing for two hours each week. In standard 5 special attention is given to drawing and art, and an elementary course of leather and brass work forms a continuation of the handicraft work for both boys and girls. Manual Training and elementary handicraft work are taken from the primary class through the Public School grades.

The following suggestions are offered by the Superintendent as further provision for training boys and girls for social service and citizenship:—

(1) A more distinctly business type of instruction in the senior grade of the Public School for boys who wish to enter offices, comprising penmanship, business course and kindred subjects.

(2) Provision for Manual Training and Household Science in the High School, continuing and supplementing the work now being done in the Public School.

(3) Provision for technical instruction in both day and evening classes; instruction pertaining to the building trade and the industries peculiar to Calgary and district, so that the schools may have a direct relation to the industrial pursuits of the community.

(4) Provision for the teaching of art in its various branches in the High School and the Technical School.

The Superintendent stated that 95% of the children of school age are enrolled; that the average attendance is 87 to 90%; that the Board had recently made provision for evening classes in Domestic Science, but that no representation had been made to him in favor of evening classes except in a very general way.

The Manual Training in the Public Schools was one of the first classes in Canada under the Macdonald Fund and has been maintained ever since. There is no Manual Training in the High School. Most of the boys who drop out of school do so in the senior 4th, the chief reason being that standard 5, or the senior class in the Public School, does not fit the boys for what they are expected to do when they leave—commercial life or trade. Some boys are compelled to leave in order to earn money, and they go into banks etc. Most of the boys would stay longer if they had some industrial work. The only difficulty in developing one side of the High School in that direction would be the financial one.

For the first four years girls and boys work together in elementary art work under the Supervisor of Drawing; when boys enter the Manual Training at the elementary stage, the girls take Drawing, and at the advanced stage the girls have Domestic Science; at the final stage both work together on leather and brass work just before entering the High School, where the Commercial Course is the only thing that would correspond with that class of work.

Nature Study is not well organized, being done mostly in two forms—the experimental method of having boxes, plants and germination plots in the school room, or the examination of plants and gathering specimens from the surrounding country. These are carried on generally by most of the teachers. The Superintendent sees no place for teachers to get Nature Study except at the High School and Normal School. To be effective in leading to agriculture, Nature Study

should be organized and correlated from one end to the other as Manual Training is, and involve the handling of actual things.

If industrial training were introduced into the High School it should be on the same basis as the present commercial training, so that the students would get the benefit of broad English training—study of history and language generally, in addition to the industrial training. The Superintendent's idea would be to have a separate Technical School. He thought the industries in Calgary sufficient to justify starting that school within two years.

The Commercial Department in the High School is a one year course, including English in all the branches,—arithmetic, commercial calculation, book-keeping, writing, stenography and typewriting. The class has about 25 members, compared with about 100 in the general course.

EVENING TECHNICAL CLASSES AT CALGARY.

The School Board is contemplating erecting a building with some eight or ten rooms in it for technical education, but is awaiting first for settlement of question in regard to the University in Calgary and also the report of this Commission. Since our visit Mr. T. B. Kidner, formerly of New Brunswick, has been appointed Director of Technical Education under the Calgary School Board, and has arranged a number of evening classes giving courses in mechanical and machine drawing, drawing for house-carpenters, building construction, sheet metal drafting, painting and decorating, plumbing and sanitation, heating and ventilation, electrotechnics, shop mathematics, applied mathematics, augmented arithmetic and English, cookery and household science, also commercial courses in shorthand, typewriting, commercial arithmetic and business English.

Conditions of Entrance.

There are no entrance examinations of any kind, but students are advised to consult the Director or the Class Instructors if in doubt as to the class they should enter. Students in any of the drafting courses are strongly advised to take up in addition at least one of the courses in Applied Mechanics, Practical Arithmetic, Shop Mathematics and Practical English. Students should be at least fourteen years of age, and engaged during the day in some industrial pursuit.

SECTION 5: INFORMATION OBTAINED FROM Mr. JOSEPH F. LYNN, SUPERVISOR OF MANUAL TRAINING IN THE CALGARY PUBLIC SCHOOLS.

There are 62 teachers in Calgary participating in Manual Training work. The Supervisor spends the whole five days of the week among those teachers, and teaches one or two days in the aggregate, doing the advanced work in the 5th form—leather, brass and basketry work. The Supervisor has but one assistant who takes all the woodwork.

High School boys have expressed to the Supervisor a wish for opportunity to do work there that they did not get at the Public School. It is much to the advantage of young fellows to have worked right through the Public School grade. The elementary work has been found of very great advantage when they come afterwards to the woodwork, as shown in their ability to think for themselves and to go ahead with more intelligence, in their knowledge of geometrical and mechanical drawing, in their technique, and in their ability to handle their fingers, the rule and the tools much better than boys who have not had that work. They also acquire the habit of planning out things. The preparatory training enables the Supervisor to get through as much with the boys in two years as formerly would require three. A great many of the teachers are very much interested in the work and consequently apply it in their schools. The work is making progress here. Calgary gets no grants for Manual Training work.

The conditions in Calgary are rather abnormal. Practically one half of the school population is in the first two years of the school; the figures show only 7 woodwork classes in the 4th standard, and 5 classes in the 5th, all the rest being below that. In the 4th standard there is no wood turning or cabinet making; there is a little copper work, mainly as decorative applied to the woodwork. The work in standard 1 includes paper folding, cutting and pasting, then very simple construction, mat weaving in colored strips of paper, clay modeling, raffia matting and winding. In standard 2 simple weaving on cardboard looms with textiles, such as dolls' caps, hammocks, etc., cardboard construction involving measuring from ¼" division, clay modeling, of forms of life and beginnings of physical geography; elements of basketry; industrial processes of material used. Standard 3, beginnings of mechanical drawing and developments as applied to cardboard construction, basketry; applied design in decoration of articles made; advanced cardboard work; bench work in wood for boys involving use of simple woodworking tools; sewing for girls. Standard 4, boys, woodwork; girls, household science. Standard 5, tooled leather work and advanced basketry for both sexes, in regular class rooms. The Domestic Science course has two special teachers, and includes cooking and sewing. There is a Saturday class for girls from the private schools, also evening classes attended by married women, working girls and teachers.

SECTION 6: INFORMATION OBTAINED FROM MISS MARGARET STEWART, TEACHER OF DOMESTIC SCIENCE IN CALGARY SCHOOLS.

Domestic Science classes had been opened in Calgary in the previous September, and had aroused great interest among the pupils, so that there was seldom an absentee. Miss Stewart takes the junior and senior fourth grades; they all go to one centre; 7 classes a week. Part of the time is taken up with sewing when they are not cooking.

Evening classes had just been started, one night a week. The students are two married women, four teachers, and some working girls. There is a Saturday class for the girls from one of the private schools.

Miss Stewart thought she could give ten lessons to the teachers of Calgary that would enable them to understand the relationship of Domestic Science to other work in the school. That was one of the objects of the technical class at night. There could be a great deal of correlation between Domestic Science and literature, science and chemistry. Children learn to write better and speak with more fluency and accuracy about the things with which they are working.

No instruction is given to girls in cutting out garments; Miss Stewart thought that would come later in the class for women, and that she could teach it. It would be an attractive and suitable subject for High School girls, but they have probably not had the preliminary lessons in sewing. By the time the girls now taking sewing go to the High School, there will be a technical class in the High School. The course would be expanded to meet the needs of the people from time to time.

The evening classes are not free; just enough is charged to cover the lighting, cost of the materials and the rent of the room. The School Board did not have any suitable building available at the time. The class meets in a public building, and the rent is very high. It is open in the day for a public school and for this technical school at night. The intention is to have three nights a week if there are enough applications.

SECTION 7: INFORMATION OBTAINED FROM Mr. WILLIAM A. HAMILTON, SUPERVISOR OF SCHOOLS, LETHBRIDGE.

Public and High Schools are under the same board. Standard 5 is the highest form in the Public School. In that form 43½% are boys, in the next lower 43.8% are boys, in the High School 47% are boys, so that whatever conditions cause the older pupils to leave before finishing seems to affect both sexes. Many leave from 12 years of age upward, because of poor progress in lower grades, lack of opportunities early in life and discouragement by competing with younger children, etc. No doubt these pupils would remain longer if they had more hand work, for they have a great deal of physical energy, which the present course does not offer opportunity for using.

The average attendance at the Public School is from 60 to 70% of the enrolment. There is no compulsory attendance in Alberta; but there are not many children who do not attend school.

There is no Manual Training, Domestic Science or Drawing in the city schools. A beginning of hand training has been made in younger classes up to second grade —paper folding or paper cutting, a little clay modeling, but nothing above that. Experience shows the educational value of those subjects and the Board contemplates having both Manual Training and Domestic Science.

The School Board has wished to separate the High School from the Public School, and a site has been purchased with the hope of soon having a well equipped High School. The ratepayers have great hope of seeing the school work carried on in an advanced manner, and are willing to make reasonable provision. The new High School site is 2½ acres.

SECTION 8: INFORMATION OBTAINED FROM Mr. DAVID ANDREWS, PRINCIPAL, THE HIGH SCHOOL LETHBRIDGE.

The majority of present students will go into the teaching profession or to the University. The Board does not think there is a single child of a miner in attendance. There is no organized handwork except drawing, the building being small and having only a small staff. The majority of pupils are from Lethbridge and probably 10 or 15% from the country. A very small percentage will live on farms or follow farming.

Those who are preparing as teachers will have to start in country schools, as towns require experienced teachers. Agriculture is taught but has to be taken largely from book knowledge on account of having no school garden. Animal life studies in the second form of the High School are not greatly adapted for farm life. It would be far more satisfactory and practical if more of the animal life of the farms were taught and the work on the lower forms of life thrown out. The pupils get a kind of imaginary idea of protozoan life, that is, they get the names. All this is taught from book work as the school has not a microscope powerful enough. Nature Study as far as animal life is concerned could be greatly improved. Physical and commercial geography could not be taught satisfactorily without a map, nor mathematics without a paper, or agriculture without a plot of ground, unless the pupils can go home and look at actual things and report on their return. For satisfactory work pupils must have contact with actual things. The few boys who have contact with the country become much more satisfactory students of botany, animal life and agriculture. It is to be hoped that the revised curriculum will put Manual Training and some technical training in the schools. The school should have a plot to demonstrate agriculture and botany, the same as physical science and chemistry are dealt with in the laboratory. Domestic Science is something that every girl should be in touch with at home, but the Principal is not sure that there is a great necessity for it in the school.

BOARD OF TRADE'S SUGGESTIONS.

The Board of Trade, after a discussion in a full meeting of its members, recommended to the Commission the establishment of,—

(1) A Technical School for mining and other industrial pursuits. Lethbridge is a very important coal centre. There is an immense amount of coal at different points throughout Southern Alberta and within a radius of 100 miles are at least 35 coal mines. At no point in the Province is any instruction given to fit men for higher positions in the mines. The Board believes the establishment of a school of this character would not only be a great benefit from an educational standpoint, but also a distinct factor in preventing accidents. The men employed in the mines have no means of procuring any education in their own particular line, except what they learn from actual experience and through correspondence schools. Many new mines are being opened up in this district, and

men with a technical knowledge of the business are in great demand. During the next year at least $500,000 will be spent in developing new coal areas within a radius of ten miles of Lethbridge.

(2) A Technical School of Agriculture. Lethbridge is the centre of a large agricultural district. The Dominion Experimental Farm is located there; they have one of the oldest irrigation systems in Canada, and it is very necessary for farmers to receive scientific training in the use of water, the rainfall being lighter than in other parts of Canada. Farmers not served by the irrigation system would also be greatly benefited by scientific instruction as to best means of conserving moisture.

The establishing here of schools for technical education and industrial training in agriculture and mining will foster the development of other industries which will require men with technical training.

SECTION 9: THE PUBLIC SCHOOLS OF MEDICINE HAT.

The compulsory attendance law is not practicable, and is not enforced in this city. The daily average attendance is 600 out of 725 enrolled.

A Supervisor of Drawing spends two hours each day visiting the rooms and outlining the work for the different standards and supervising it. The drawing and color work is carried on quite successfully.

In the lower forms there is paper folding and weaving, etc., intended to prepare the way for Manual Training, which it is hoped to introduce.

Agriculture is taught according to the Departmental program, but the subject is not handled by teachers as skilfully as it might be on account of lack of preparation, though they are making conscientious efforts. There is no School Garden, no Domestic Science, and no Sewing is given to the girls.

A number of young people in the High School are preparing for the Normal, and a number are going to College; others have nothing definite in view. Some take positions in banks and drug stores, and some are working at such places already during their spare time. These young people at the High School who intend to be teachers are getting nothing in the way of training to qualify them to give instruction in Manual Training or Domestic Science.

CHAPTER LXXXIII: THE UNIVERSITY OF ALBERTA.

SECTION 1: INFORMATION OBTAINED FROM Dr. H. TORY, PRESIDENT OF THE UNIVERSITY.

This University, situated at Strathcona (now South Edmonton), was constituted by Act of the Legislature in 1906. Teaching began in September, 1908.

In 1910 there were 128 students enrolled from Alberta, though many had received their early education in various parts of Canada. The University is maintained wholly by the Province, and the Act creating it makes it possible for it to train leaders in all departments of activity. Alberta having considerable interests in mining, it is expected that that Department will be developed early, as well as one for Agriculture, which is the fundamental occupation in the Province. There will be a call for a large number of men in the public service who need high training, and this will increase as time goes on.

The Department of Civil and Municipal Engineering was barely started before appeals were made for help in the solution of municipal difficulties, which are bound to be enormous in Alberta as the Province grows; hence special attention is being given to that Department, which will have a four years' course. It covers waterworks, surveying, railroading etc., specializing public health and municipal problems.

In conjunction with the ordinary Arts course, Applied Science is taken and the faculty of Arts and Sciences has charge of Practical Science. This work was kept under one faculty because of the small number of students and staff; and it is the intention to keep the faculty of Applied Science within the faculty of Arts. The University offers degrees of B.Sc in pure Science and B.Sc in Applied Science. In Arts itself, physics, chemistry, botany, biology, mineralogy are treated in a practical way as laboratory subjects and also by lectures. A workshop is planned for on the new College grounds.

It is expected that the Department of Education will require University graduates in all specialist work of the High Schools; and as these specialists train students who will become Public School teachers, in time Science and Nature Study will surely permeate all these schools. The University ideals in connection with all that class of work are finding their way down to the Public Schools rather than coming by the reverse process. In that way University men will influence education.

The University tries to fix the standard of matriculation, but in practice it is depending on the standard fixed by the High School. A State University in a Province like this, in the opinion of President Tory, should be developed upon the top of the High School courses, and there should be no break in the scheme from the Kindergarten to the graduating class. He thought the University would be prepared to give adequate recognition in its matriculation standards to such work as Nature Study and Manual Training, though the question had not yet required decision.

A Committee, of which Dr. Tory is chairman, is studying the whole question of the Public and High School courses, and if Alberta High Schools should provide thorough instruction in Nature Study work, so as to qualify pupils who are to teach, and also Domestic Science courses, so that girls might be better for that training as well as being competent to teach the subject, he thought the University would give adequate recognition to those subjects. He would have no personal objection provided it was done as real work, and he thought a good course of Nature Study, Domestic Science and Elementary Science would have excellent disciplinary value, and would lend itself to thoroughness under good teachers.

The University hopes to do research work. That work should help members of the staff, and if extended beyond Alberta offers a field in which the Dominion Government might be properly called upon for aid to help Alberta solve its problems. Research work will be very practical in character, such as problems relating to the treatment of the soil, on which a little has been done by the Agricultural Department at Ottawa, but on which there are few data for Alberta; the conservation of moisture in soils—a large field for the physicist; our mineral possibilities—a field for the geologist and mineralogist. Research work would give the University a national character. Any work in relation to Public Health, for example, must be of value to other parts of Western Canada where conditions are similar.

Dr. Tory discussed the question of industrial education as it relates to the hand worker as distinguished from the man who plans the work for others. He noted a great gap in our educational system between the point where the Public School leaves the boy who is quitting it, and where the University takes up the more advanced technical work on its scientific side. The technical school must fit into the educational scheme of the Province in those places corresponding to what is called the secondary field in education.

On the other hand, industrial education has relation to development of trade and commerce and the resources of the country, and has perhaps a little less Provincial restriction than what is called secondary education. From that point of view, it has a claim on national support that ordinary processes of education have not. The question of leadership in industrial education is a national concern. The fact that it contributes to the trade and commerce of the whole country gives it a special claim on the nation at large, through the national Government. University men do not stay within the bounds of their own Province, but shift about from one part of the Dominion to the other. Dr. Tory thought the plan for Alberta would be to reinforce by national support whatever position the Province might take, leaving the administration as now, for he thought all education could be better administered by the Province than from without.

SECTION 2: INFORMATION OBTAINED FROM Dr. ADOLPH LEHMANN, PROFESSOR OF CHEMISTRY.

The Department would give much help if it could offer an opportunity to acquire a knowledge of chemistry by a course along agricultural and other lines. A course bearing on agriculture would not interfere with general education. The

use of chemistry in agricultural problems would enable a man to make much use of it on other problems. The analysis of wheat and flour could be taken as a basis.

A student intending to become a High School teacher could get as good a course in chemistry at the University as he required, and all the necessary help to qualify him as a teacher. The bulk of the students attending the University would not be able to analyse soils, because they would not have the apparatus; but they would be expected to have intelligent ideas as to what the soil contained. Demonstration classes at the colleges could be arranged for the benefit of the students and any teachers who might attend. The bulk of the students are very keen to take in any information that is given in University extension work, and some of the principles of chemistry could be given by illustrations and demonstrations which would enable the teachers and farmers more readily to understand the subject. Short courses that would be applicable to School Gardens could be given to help those who are to teach.

SECTION 3: INFORMATION OBTAINED FROM Mr. W. MUIR EDWARDS, PROFESSOR OF CIVIL AND MECHANICAL ENGINEERING.

This Department covers Civil and Mechanical Engineering, the latter embracing railway work, power development work, mineral work, surveying, etc. A man who took Civil Engineering would get a good idea of the sanitation of a town. There is no reason why a female teacher taking the course should not get a foundation; she would understand the problems involved; and she would take the lectures in the 3rd and 4th year. The first two years of the Applied Science course is practically the same in all Universities, and this University gives those two years, and has an arrangement with Toronto, Queen's and McGill Universities by which they give the Alberta men equal standing.

The problems of road making and drainage with which we deal are of direct concern to farmers. There is quite a demand for night schools for fire bosses, mining bosses and pit managers, so that they might get up qualification as required by the Act. It is quite possible that such classes could be organized in other centres under University direction, and be handled by a local man, the head of the University department visiting and inspecting from time to time.

Manual Training in the Public Schools and industrial training in the Secondary Schools would undoubtedly lead up to the University on its technical side. A man would be much better prepared for a course in Engineering if he came to the University with preliminary skill obtained in actual work, as it is difficult for the University to give shop practice. In Mechanical Engineering there is a very close connection between the industrial and the University side, and many industries in the east are now being managed by men who have had engineering

training as a preliminary. The same remark applies to Civil and Electrical Engineering. A man who has the direction of power development is very often a valuable man to the industrial side of a concern.

There is reciprocity between the Provinces of the Dominion in the training of Engineers, two years of the course being taken here and the remainder at eastern Universities. Moreover, an engineer is a man whose distinct activity may be Dominion-wide—he may be working in one Province this year and in another next year; hence the whole Dominion is really more interested in his efficiency than any one Province. The trained technical men go from one Province to another, their qualities of leadership taking them where they are called for.

CHAPTER LXXXIV: SUMMARY OF OTHER TESTIMONY.

SECTION 1: AS TO OCCUPATIONS.

Building Trades.

Architects.

An architect said that the best draftsmen were those who had been trained in offices in the Old Country and had taken a technical course. Their superiority is attributable to the systematic training through apprenticeship, and that they have been taught the use of the pencil as a mode of expression from the very beginning of their education. These men could teach drawing construction in evening classes. The more a workman understands the language of the architect, the better he will get on.

An architect stated that he had studied and got his experience at Ottawa, serving a regular apprenticeship, and taking private lessons in freehand drawing and modeling. He spent one winter in a carpenter's shop, another at bridge work, and the next year in general work around buildings.

Another architect, who got his training at Aberdeen, Scotland, served 5 years as an apprentice and attended evening schools during that time. For the first 5 years he took a technical course in the local Art School, in building construction, mathematics, theory of structures, plumbing and sanitation. Later he studied antique and life drawing, and clay modeling.

Contractors.

A contractor stated that very few men care to serve as apprentices, and that employers prefer full-fledged journeymen. A good education in mathematics, drawing, reading plans, etc., would be a great help. Experience is the best teacher of all, but if a man had the schooling in the first place and then practical experience afterwards, he would find it more helpful. Theoretical and practical instruction must be combined. The men would be glad to have an opportunity of learning to read plans.

Another contractor said he had not studied drawing at school, but had learned to read plans and take off quantities by studying the working plans and by experience. If he had had such training in his school days, it would have helped him greatly.

A manufacturer of doors, sashes, etc., and also having a sawmill, said that although much machinery was used in his business and had almost eliminated skilled labor, men were required who could lay out work. A young fellow who was kept at one machine could never become a foreman or superintendent, and opportunities should be provided for them to learn the theory of their work, so that

they could rise to positions of responsibility. A course in building construction would be welcomed.

Carpenters.

A witness stated that instruction in carpentry, joinery and building construction would be most beneficial to carpenters. Many of them cannot build stairways, and although practical experience is necessary for this, technical education would be very helpful. Hardly 2% of carpenters can cut the timber for an intricate roof and construct it. Men need to learn to read plans. The witness had had instruction from a man who had a considerable number of small models of sashes and doors, and had found that instruction, together with technical drawing, of great advantage.

Another witness said that quite a number of carpenters would be glad to take advantage of evening classes and get instruction in geometry, mensuration and mathematical drawing. Many, however, would need to have a further common school education to enable them to grasp those subjects, and some would be weak in arithmetic.

A carpenter who had learned his trade in Scotland, said he served 4 years' apprenticeship, and before going to the trade had learned drawing, mathematics, plan reading, geometry and scale drawing in the public school of his locality.

A carpenter, who had learned his trade in England, served 7 years' apprenticeship, and attended a technical school for 3 nights a week during 4 years, doing home work on the other evenings.

Bricklayers.

A bricklayer said there was a danger that a young man who had had a little practical instruction in a school would go out and try to get a job as a bricklayer.

A bricklayer learned his trade by apprenticeship in the Old Country, and attended night classes at a technical school for building construction. He had found these classes of real benefit.

Plasterers.

A well-trained plasterer would use less plaster on a wall than one who is not trained, and he would work faster. More experience is needed to work with the quick-setting plasters than with the old plasters.

Instruction in erecting and installing light iron construction, corner beads, hanging of brackets, reading plans, and such things as that, would be of great benefit.

Plumbers.

A representative of the Plumbers' & Steam Fitters' Organization said that a plumber to become a foreman needed Technical Education.

A master plumber and steamfitter said that plumbers would like to have instruction in the principles of sanitation. Technical Education makes a safer workman, and a man could get information in a school that would help him considerably.

A plumber, who served six years' apprenticeship in England, took evening classes for one year, and got the rest of his instruction from foremen and journeymen.

Painters.

Painters would be glad to have instruction in mixing colors, preparing work, carriage work, sign writing, design, harmony of colors. As a general rule they do not understand the general principles of the perception of colors.

Cement Workers.

The Manager of the Alberta Clay Products Company, producing sewer-pipes, wall coping and all grades of brick, stated that about 20% of the workmen were skilled. He tried to pick out able men that could adapt themselves quickly, and had frequently taken men from the trenches as foremen. The witness did not think that his men would get much benefit from evening schools, as actual experience was the best way to learn the business. From the industrial standpoint he had found that one of the greatest assets to any city is Manual Training in the schools. The young fellows that have had Manual Training have acquired by early training what the others have failed to acquire through later experience.

Metal Trades.

Engineers.

The examinations to be passed by stationary engineers are getting harder all the time, and the men would be very glad to have a Technical School. A qualified engineer could economize much in fuel and in the cost of maintaining the plant.

It is very important that locomotive engineers should know the condition of boilers for economy and safety.

Engineers in Calgary would take advantage of evening classes.

Machinists.

The continued absence of technical training would be very detrimental to the country from the industrial point of view. The specialization of work without other training is having an unfavorable effect on the training of boys.

One witness said that studies of the expansion of gases and steam would be useful to locomotive mechanics. He had also found mechanical drawing of great use to him in his work.

Another machinist was of the opinion that Technical Education would induce boys to take more interest in their work.

A machinist, who had served 7 years' apprenticeship, stated that he had gone to classes while apprenticed. One firm gave instruction in the theory of steam generation with all the necessary mechanism and mechanical drawing. The instructor was the chief draftsman of the firm; no fee was charged, but the apprentices bought their own instruments. Apparatus was provided for the boys to work with. This was much more satisfactory than a Correspondence Course.

A machinist said he had served 7 years' apprenticeship in Rochester, England, and took a 2 years' course in applied mechanics, machine construction, and elementary electricity.

An engineer pattern-maker said he had served 7 years' apprenticeship in England to that trade, and attended evening school during and after that period, studying applied mechanics, geometry, mathematics, and machine drawing 3 nights weekly.

A witness who had served his apprenticeship at blacksmithing, carriage building, iron moulding, pattern making, and machinist work, said that it was pretty hard to explain the work in any of these lines without demonstrations. Where the practical part was easily acquired such a man would be glad to attend an evening class for the technical side of his work.

The Superintendent of the Calgary Division of the C.P.R. said they had difficulty in getting skilled labor for work in repairing locomotives. 600 men are employed in this department. The higher positions are recruited from among the young men serving in the junior grades; they start in the shops as cleaners, wipers, firemen, etc., and are then put on the road as firemen. They have to pass an examination on the rules; no systematic instruction is given, beyond what they learn in the course of their work. An air-brake instructor takes up everything connected with the handling of trains by air-brakes, and gets round to the different points about twice a year. He also gives instruction in the heating and ventilating of cars. A road foreman of engines travels about most of the time and instructs the men in the economical use of coal as he goes along with them; he also gives them books and pamphlets on combustion, and sometimes a lecture is given.

Sheet Metal Trades.

A witness, engaged in sheet metal work, said that so much of this work depends on drawing that a knowledge of geometry is essential. The Union provides a class in pattern drafting, and the Sheet Metal Worker's Journal contains articles and problems, which are used in the evening classes. These classes are conducted by experienced men, and are open to everyone. A class for more advanced work would be beneficial.

A sheet metal worker served his apprenticeship in England as a carriage lamp maker, and took up mechanical drawing. He had taken a course in the Correspondence School, and found it useful and practical.

Printing and Publishing.

A job printer and publisher said that schools at centres of population, giving expert theory and practice in the printer's trade, would be welcomed both by the Union and the employers. The employers demand from the Union a high efficiency of labor; and such schools would establish a standard.

Watch and Clock Makers.

A watchmaker said it was necessary to serve an apprenticeship at this trade. Elementary mechanics and the principles of mechanics ought to be taken up in

evening classes, and men would work much better if they knew the theory and understood the reasons for what they were doing.

Telephone Service.

A witness who was engaged as construction foreman for the Alberta Government telephone system, said that about 300 men are employed by the Government installing lines throughout the Province. These men are fairly well trained as to the value and use of insulating materials; they get their knowledge by experience; but a large number of men could not tell whether glass or porcelain is the best insulating material. A knowledge of insulating would be very valuable to men in this business, so that they would put in the plant more carefully. Men with technical education would save a great deal of money in installation, and if men got some recognition for taking the course of training, it would be an advantage to the Province. Highly trained linemen would insure public safety.

Brewing.

There is a good percentage of skilled craftsmen in the business, but the companies have to train their own men; they get no regular instruction except what they learn from the foreman and from experience. Some of the men would like to go to evening classes.

A brewer had taken 3 courses of chemistry, went through a chemistry course at McGill University and then the Chicago Brewers' College.

SECTION 2: AS TO EVENING CLASSES.

Evening Schools have been started by one or two of the better trained men in the employ of the Alberta Railway and Irrigation Company. One was taught by a young Englishman who had English certificates. No doubt a large number of men would like to get further instruction.

Young miners so far have not shown a keen desire for night classes, but if the classes were worked up a little more on technical lines, there would be a considerable number of applications. Mining men would learn something about their work in evening classes.

Miners take correspondence courses very frequently and it would be much better if they had a regular technical school to go to, as they could see the objects before them. The correspondence schools offer a great variety of courses, and the men learn a great deal from them, but not as much as they would from a teacher on the spot.

Carpenters would like to go to evening classes to learn to construct stairways, roofs, etc. Many good carpenters are unable to undertake such work.

Bricklayers would be glad to have evening instruction in fine arch and panel work, which they should all know, but do not. With 1,000 bricks and a good bricklayer as instructor, a good piece of work could be demonstrated, and many would like to see it and learn how to do it themselves.

If the men worked only 8 hours they would have more chance of taking evening classes. There is not much ambition to attend classes, but if men had the models and actual work they would be able to see for themselves whether the classes were practical or not.

At one place the Board of Education had offered three times to provide classes, but the response was not sufficient to justify the expense. Instruction along the line of the day school was offered, and possibly this was not what was wanted.

Many would like to attend evening classes. A large number of the 1,600 men connected with the Trades' and Labor Council would attend. Some men had arranged a little club among themselves for the purpose of discussing matters connected with their trade, but on account of expense and other reasons it was not carried out.

CHAPTER LXXXV: AS TO AGRICULTURE.

SECTION 1: INFORMATION OBTAINED FROM Mr. GEORGE HARCOURT, DEPUTY MINISTER OF AGRICULTURE.

When Alberta was organized as a Province, in 1905, a department of Agriculture was established in charge of Minister, Deputy Minister and Staff. The function of this Department is to help farmers with expert advice by financial grants, by supervision of varied movements in farming communities, etc.

The free grants of 160 acres of land to settlers attracted people from all countries and from various walks of life. Many of them have never farmed a day in their lives and are absolutely ignorant of the foundation principles of their work; they have everything to learn, and if such men are to become farmers, they must be taught.

CONDITIONS AND FACILITIES IN ALBERTA.

The chief problem which puzzles the settler from other countries and even from Eastern Canada or the Middle States, is the much lighter rainfall in this province. Records have been kept for several years as to the precipitation in Alberta, and the comparison with other territories on this continent is strikingly shown by the following figures:

		Inches.
Alberta	average 7 years	15.95
Ontario	average 27 years	31.62
New York State	average 23 years	27.80
Missouri	normal	40.71
Iowa	average 19 years	31.71
Ohio	average 21 years	39 20

Because of these drier conditions, methods of farming, suitable in other places, do not succeed here so well, and many a good farmer from other lands has been brought to the verge of ruin by following the methods applicable elsewhere before he realized the difference in conditions and necessity for change. A detailed statement shows that about 40% of the annual precipitation falls during May and June and from 68 to 80% during the four months, May, June, July and August—the growing period when crops require moisture. Owing to this condition successful crops are raised with a minimum of precipitation, the fundamental principle of the so-called dry farming movement being applied to conserve the moisture in the soil for the growing season.

In carrying out its education policy, the Department has adopted various methods, including:—

(1) Farmers' Institute Meetings, which are held in all parts of the province during the winter, addresses being given by experts on general farming topics. These Institute meetings are supplemented by short courses running for a fortnight, giving instruction in the handling and judging of live stock, poultry raising, dairying, weed destruction, study of grains, etc.

(2) Seed Fairs, which are held throughout the Province, addresses being given on the methods of producing seed grain and prizes awarded for the best exhibits of grain for seed.

(3) Practical demonstrations (*a*) by travelling dairy schools giving instruction in the care and handling of milk, cream and butter—these schools being held in outlying districts, not in those tributary to creameries; (*b*) by special schools for instruction to buttermakers; (*c*) by creameries controlled and operated by the Government in order to demonstrate that the work of the ordinary creamery is advantageous and can be made successful. Instruction is given to buttermakers, and judging contests are held among the buttermakers, the year's make being judged on the basis of a score of points, a premium of 2 cents per lb. being paid for all the butter from the Government creameries grading No. 1; (*d*) by operating poultry stations for demonstration of methods of producing crate-fattened chickens. This work was carried on in connection with creameries for two seasons and excited great interest, the demand for eggs being so great that the Department could not supply more than one tenth of the orders. The importation of a car-load of birds was arranged for and before the car arrived it was over-subscribed by 1000 birds. As the farmers are importing large quantities of eggs and poultry it is hoped that these stations will develop the poultry industry in the Province; (*e*) by maintaining a Poultry Breeding Station at which the utility breeds of fowl are kept in order to demonstrate the proper methods of feeding and caring for poultry. This plant has demonstrated that Alberta is an ideal country for raising poultry, eggs being produced when the thermometer registers as low as 20° below zero. Large quantities of eggs for hatching purposes have been sold all over the Province, as well as the surplus stock reared at the station itself; (*f*) by maintaining fruit-growing stations. As the wild Choke Cherry grows in all the coulee river bottoms and in many of the bluffs on the open prairie, it was believed that the cherry and apple and possibly the pear could be grown with good results, and this theory has been verified by results obtained by many farmers in growing apple trees. The larger fruits are being tested at ten demonstration stations established by the Department in different sections of the Province; (*g*) by compelling the destruction of noxious weeds. The absence of moisture in the fall season allows the weeds to lie on the ground undamaged or to be ploughed under and remain safely preserved in the soil until sufficiently moist for them to germinate and grow. The Department has spent for a number of years approximately $10,000 a year in the destruction of noxious weeds and has active inspectors in every district.

(4) Direct assistance in the way of grants to Associations for the improvement of horses, cattle, sheep, swine, and poultry, and to Societies for Horticulture, Natural History and Game Protection, grants to Agricultural Societies for holding Farmers' Institute meetings and carrying on Summer and Fall Fairs and stallion shows; the maintenance of a Live Stock Commissioner who spends his time moving

amongst farmers instructing them in the best way of handling and marketing live stock, and endeavoring to safeguard the interests of shippers against transportation companies; assistance in transportation of pure bred stock into the northern part of the Province and bringing pure stock from the eastern provinces to improve the dairy stock of the country; grants to farmers' organizations, particularly the United Farmers of Alberta, and to assist them in obtaining better markets for the products they have for sale.

The idea of the Department has been that the man who needs agricultural education most is the farmer now on the soil endeavoring to make a living, hence the policy as outlined, of giving him all the information and assistance possible. Each year sees an increasing need for higher education in agriculture, and this has taken the form of a demand for an Agricultural College, pending the establishment of which the Department has for a number of years paid the transportation expenses and the extra tuition fees which students from Alberta are required to pay because of non-residence at an eastern Agricultural College. This has been done also for young ladies who wish to take a course in Domestic Science. It is expected that this policy will meet the needs of the Province for a number of years, and also indicates the extent of the demand for a Provincial Agricultural College. In the meantime the entire energy of the Department is directed towards supplying the immediate needs of the farming community by giving them all kinds of information.

The Deputy Minister of Agriculture expressed the view that the present school system in Canada results in driving or leading the boys away from the farm to city pursuits; and in his opinion this condition has arisen through the large Universities setting certain standards for matriculation. Secondary schools preparing students for matriculation direct their efforts to those standards so as to pass as many students as possible; and the course of study in primary schools has naturally been gradually made to conform to the University standard as worked out through the secondary schools. The leaven of the University has so worked into the teaching profession that quite unconsciously the whole educational system has been given a twist in the wrong direction.

It is a well known fact that not more than 10 per cent of the pupils go through primary schools to matriculation; but the great bulk leave when they have passed what is equivalent to the Public School leaving or the entrance to the High School; yet it would appear that the training given this latter class of schools does not fit the average boy for any occupation, as it has all been in the interest of the 10% who go on for higher education rather than for the equipment of the 90% who must, of necessity, leave school and go into other walks of life. There is, therefore, room for readjustment of our whole educational system so that it will fit more closely the actual conditions and needs of life. There is no reason why Agriculture, possibly better understood as Nature Study, as related to the pursuits of the farmer and things in nature around us, should not be woven in the warp and woof of our educational system, this line of study being continued in the High School and such work being further recognized in the matriculation examination and ultimately becoming part and parcel of the work of the University. In this

way Agriculture will be given its true standing on an equality with other branches of education.

An effort should be made to provide a course of study in primary schools as far on as Public School leaving that would more nearly conform to the conditions of the life of the 90 per cent of pupils who go no further. The Secondary Schools can make up any deficiency that seems to be lacking for the University standard, which could be rearranged, thus the whole educational system would combine to educate equally well all classes and not discriminate against 90 per cent of the young people of the country as at present.

The Department is making demonstrations at Medicine Hat in connection with dry farming, the intention being to inform the farmers and let them apply the principles to their own conditions. One of the first things a man must know if he is going to make a success of farming in Alberta is the conservation of moisture. It lies at the root of the wheat question, because after one year's crop is harvested there is very little moisture left for the wheat seed for the next crop.

A great deal of the success of fruit growing will lie in a thorough understanding of this question of moisture. In fifteen years we expect to grow good apples, plums and cherries in this Province. It is a question of getting hardy varieties and obtaining a proper knowledge of how to cultivate and take care of them with a limited rainfall in the autumn.

Not 2 per cent of the available land in Alberta has been brought under cultivation.

Mr. Harcourt expressed the opinion that as so much depends upon the work of meteorological observatories, the Dominion Government, under whose auspices that work is conducted, should assist the Province. He said he could place one hundred observatories in Alberta.

The rural schools in Alberta are not doing much in the matter of instruction as to conserving moisture, destroying weeds and getting good seed. A School Garden and Illustration Farm would be good things for a locality, and Farmers' Institute speakers might use such places for instruction of the people of the Province. One-day meetings at such places would be of immense value, and would really carry forward the work developed on the research experimental farm and the field work would thus be extended.

Excursions to the Experimental Farm at Lacombe have been very helpful, the field demonstrations being the most interesting part of the proceedings, as the farmer by using his eyes can get the benefit of an illustration in a few minutes.

SECTION 2: INFORMATION OBTAINED FROM Mr. W. H. FAIRFIELD, SUPERINTENDENT OF THE DOMINION BRANCH EXPERIMENTAL FARM AT LETHBRIDGE.

The Dominion Government conducts Branch Experimental Farms at Lacombe and Lethbridge. The latter was started in 1907, and consists of 400 acres, half of which is under cultivation, 100 acres being irrigable, the balance being devoted to dry or non-irrigated farming. The farm is so new that research work is just

being nicely outlined and the work thus far has been more in the nature of demonstration than research. During the summer the Provincial Department arranges for excursions of farmers and there are many visitors.

Weeds have not been so bothersome as in older districts, but the tumble weed is becoming an annoyance on account of high winds and absence of fences. The Superintendent of the Farm attends Farmers' Institutes in the winter and local Seed Fairs. What data he considers of interest are disseminated in that way, and through Institute speakers whom he meets, as well in the Annual Report.

The Superintendent thought something more might be done for farmers' boys; he did not think the children in rural schools were getting the greatest amount of good from the instruction given them, It would be better to introduce some elementary principles of Agriculture into the common schools, relation of plants to soil, relation of soil fertility and moisture to the growth of plants, etc. He thought the weakness of our public school system resulted from following along traditional lines, preparing pupils to be either teachers or candidates for the University.

The Agricultural Colleges are doing good work, but their weakness is that they are not putting enough college bred men back on the farms. More attention should be given to short courses, at different places in the Province, for boys unable to attend the AgriculturalColleges. Mr. Fairfield favored an Agricultural Course in a number of High Schools, say for five months, from November to March,making the instruction as practical as possible, not teaching systematic botany with a lot of names, but presenting knowledge to boys in a way that will arouse the greatest interest. He favored co-operation between the Provincial and Dominion Governments by which the latter would give assistance in money to agricultural work in schools conducted by the Province.

SECTION 3: INFORMATION FROM HON. ALEX. C. RUTHERFORD.

Mr. Alexander C. Rutherford was in public life both before and since the Province was formed, having occupied the positions of Minister of Education, Provincial Treasurer and Premier. He has lived in Alberta for fifteen years and knows the general resources of the Province, the situation regarding farming and education and how the people live.

Agricultural subjects should be given more prominence in the schools, from the primary departments up. One difficulty was to secure trained teachers; another was regarding text books. Five years ago it could hardly be said that the Province had anything in the way of High School work; but progress has been very rapid, and the stage has now been reached when changes should be made in the curriculum. Agriculture has not been given the place it should have in the schools; but plans are being made to bring about better conditions in that respect. The University or Normal School, or both, should give specialized vocational training for the teaching profession. A certain amount of training has been given in the Normal School, but on account of the great dearth of teachers the Normal course has not been as long as it should. It has been found better for the Province to

train a larger number of teachers, even though they should not be so highly trained. Since these teachers get their academic training largely in the High Schools the course there should provide for effective Nature Study or School Garden work, so that all the teachers in Alberta could be quickly trained, which is very important.

The time has now arrived when Agricultural High Schools should be established.

A large number of foreigners are coming into Alberta and schools have been provided for them. Parents are anxious that the children should acquire the English language, and it was found that it was much better to have English speaking teachers among them, as the children acquire the language most rapidly by that means.

In the Ruthenian Schools, the teachers have as high training as those in other schools. There has been some Nature Study work done, and agricultural work has not been entirely neglected in the schools; but it might be made more prominent, especially in rural schools. Quite a little has been done by some districts in having a garden plot with flowers and vegetables.

Industrial developments in the Province will be small until the population is greater, and until conditions become settled we cannot hope to compete with the eastern manufacturer in some lines, such as clothing. A large amount of business is done in the manufacture of flour, building material such as brick, and all that sort of thing. Coal mining has developed very rapidly from about 300,000 tons in 1902 to 2,705,000 tons last year. Agriculture and mining are the great industries and particular attention ought to be paid to them.

Agricultural training has not been neglected, it has been brought home largely to the farmers themselves by men of the Department of Agriculture who have given courses, continuation work, and extension lectures. There will be a development in mining; and the matter of instruction to miners and their children ought to be taken up without delay. In some of our larger cities, industrial education for mechanics might very well be carried on more extensively, as the necessity will soon arise for trained mechanics, and the old system of apprenticeship having pretty well died out, we must take it up as a matter of education, if there is to be any development of industrial life.

An attempt was made to establish evening schools in one or two centres but they were not very well patronized; some of the High School masters endeavored to take up the ordinary subjects. In Edmonton evening classes for the instruction of foreigners in the English language met with merely partial success.

In the mining districts evening classes for teaching ventilation of mines and the nature of coal deposits might be taken up to a greater extent than heretofore. The time has arrived for that work, in mining centres such as Lethbridge and the Crow's Nest Pass country. The coal mines are some distance from Edmonton and it might be difficult to get miners to come in for instruction.

The output of coal should be taxed in order to establish and maintain mining schools, and the Dominion Government should forego its royalty on coal.

Evening classes in the country on summer evenings would be a good idea where the pupils could use garden plots, the evenings here being long. It is only within the last year or two that settlements here have been getting close enough

for such an idea to be workable. At Red Deer there is a Consolidated School to which the Government is giving extra support with a view to discovering what is practicable.

SECTION 4: "THE UNITED FARMERS OF ALBERTA."

Mr. Edward J. Frean, Secretary-Treasurer of the United Farmers of Alberta, gave an outline of the operations of that organization. The Association is nearly six years old, and comprises the old Alberta Farmers' Association and the Association of Equity. There are over 8,000 members paying $1 membership fee, half of which goes to the central body and half to the Local Unions.

Work is being done through Local Unions which form themselves into small Voluntary Co-operative Societies and combine to market their products. They have been selling hay, grain, cattle and hogs, and have found the plan to work very satisfactorily. No standard for hay is fixed by provincial law, but the Association is endeavouring to secure an amendment to the Dominion Act whereby inspection as in force in Ontario and Quebec can be made effective in Alberta, but with different standards. At Red Deer the farmers agreed to tag their baled hay, giving the name of owner, time baled, etc. The association is working with the hay balers and commission merchants of British Columbia and with the farmers of Alberta and Saskatchewan. In Southern Alberta, where there was shortage, the members combined to buy co-operatively hay, oats, etc., from members in the north, and in the south co-operative societies are being formed to carry on selling as well as buying. A movement was on foot to buy farm machinery co-operatively, but without success, on account of the difficulty in getting in touch with the machinery companies.

The association co-operates with the Department of Agriculture to see that its Institute meetings are well advertised and attended, that speakers are well looked after, and that assistance is given in every way to disseminate the knowledge obtained as to dry farming. Advantage is taken of everything provided by the Government through the Department of Agriculture.

Many of the Local Unions meet and discuss conditions of soil, climate, etc., especially in Southern Alberta, and depend upon the Department of Agriculture to furnish speakers.

The members take a lively interest in the rural schools and as a whole are not satisfied with them, the feeling being that the present system tends to educate children off the farm and to show boys that farming is on the lowest rung in the ladder, and that after getting a little bit of schooling and a clerkship in a country store they have made a step in advance. The impression prevails that the school system is theoretical and not of practical value for boys and girls after leaving school; and that the pupils do not get enough chance to do things at school.

At the last convention they indicated what should be done and asked the Government to proceed on that line. They believe the teaching of Agriculture should be one of the main subjects of the school, starting in the primary room and going right through, and that teachers should take a practical course in agri-

culture before obtaining certificates. The teachers who have passed their training should be provided for one or two years with a three months' course, which would give a girl a good deal of information and a fair amount of practice. The farmers would co-operate with her to give her further practice.

Demonstration farms in charge of practical people should be established in various localities and these teachers should get practical training there. The course should be compulsory and paid for by the teachers themselves. The practical farm should be convenient to High Schools and the pupils should spend a certain part of the school year on them. With this course should go practical training in Domestic Science.

The United Farmers of Alberta would sustain any Government that would push such a policy for advanced education and training of teachers. The organization is sending out all knowledge obtainable as to pure seed showing the need of keeping the different strains pure. Its object is to encourage dealings direct from producers to consumer through the Association, cutting out the middleman.

SECTION 5: AS TO FARMING CONDITIONS.

Among the witnesses called were representative farmers from Calgary, Edmonton and Strathcona, Lethbridge and Medicine Hat. Conditions in those districts as gathered from their testimony may be summarised as follows:—

Calgary.

The farming community around Calgary comprises some of the most intellectual, highly cultured and scientific farmers, as well as some of the most ignorant. Some have had no previous knowledge of agriculture. Others are professional men, such as doctors and lawyers, who are studying the Province and who lack nothing in capital, implements, machinery or knowledge. Weeds are increasing very rapidly all through the Province and in some districts will take entire possession if not eradicated.

Some farmers are keeping up fertility by returning manure to the land; others are simply "mining" their soil. Dry farming is beginning to greatly interest the people; if a man fails to conserve the moisture and lets weeds grow, they will swallow up everything. Summer fallowing is followed, but there is no advantage from it unless the moisture is taken care of. If a man summer fallows and does not keep down the weeds he is further behind than if he did not summer fallow; and it would have been better to put in a crop and get what he could out of it. Summer soil culture would be a better term here than summer fallow, because the farmer would be looking after it the whole season. Alfalfa has done well up to this season. A witness had grown it for five years, but the moisture was not enough that year to bring a good crop. Usually two crops can be gathered in the season.

A good deal might be done here by Illustration Farms. In some districts the utter helplessness of some farmers is very pitiful. From England and some

parts of Europe men come who think they have only to dig up the land and they can live, and a witness had met with some very sad cases. Some farmers have an idea that the one great requisite for farming is muscle, and will not waste even half a day to learn improved methods.

Children cannot be inspired too early with the dignity and importance of agriculture with the idea that it is our basic industry and principal calling. The schools are now worked too much on the idea of training children as teachers.

A witness had spent nine years here and had always had a system for finding room for English boys at his place; and he always found that if you put a boy to ploughing and seeding and tell him why he is doing it, explaining the bacterial life and all that, he always becomes enthused and is a better man. A little has been done with flower pots in schools. It would be a great inspiration for the children to have a plot that could be cultivated by an expert and then let them see how near they could come in their little plots to his well grown vegetables. Witness had obtained his first great love for the soil by competing with his father's gardener. The personal control by the child has an effect, not merely on its acquisition of knowledge but also on maintaining its keen interest in work.

The Government could establish experimental farms on a more practical basis than at present and have a thoroughly practical man in charge of a farm of half a section or a full section in every locality where the local conditions are different from other sections. Farmers would willingly go there from their homesteads and work for three or six months if they could earn just a moderate amount and their labor could be made profitable. There is no reason why the Government should not own such farms, for they would be good assets; but regular farmers running them as their own and being supervised would perhaps be best. The man coming into the country with very little capital cannot afford to travel a great distance, and yet some are really anxious to get information.

Many homesteaders are without wives and it would be a great blessing if that question could be solved, and good homes be provided for women. These men have been attracted by the land hunger. The usual method is for four friends to settle on a section, two of them doing homestead duties in the summer, and two in the winter, those who go into the city becoming competitors with city laborers or engaging in railway construction.

Edmonton and Strathcona.

Around Edmonton and Strathcona conditions were gathered from the evidence of three representative farmers.

One farmer who has been settled on 300 acres for eleven years does mixed farming and has used rotation of crops in order to control weeds, provide pasture and feed stock. By his plan he has succeeded in getting more crops and at the same time keeping down weeds. Local difficulties in rotation are overcome by right methods so that crops can be had every year instead of every alternate year as in other parts.

Timothy comes in as a rotation and does very well. Alfalfa promises to be very good fodder material; blue grass and white clover are better than timothy,

but the latter has been used for hay more than any other, and the land put into grass for a couple of years. There is no fear as to quantity of humus in the soil; but clover, alfalfa and such things will be used later on when humus is needed.

School children should have inducements to investigate pure seeds for this work—it would be both interesting and beneficial. If school plots were put in favorable locations with good soil prepared for demonstration plots, enough teachers could be found to increase interest in such work and farmers would lend help by getting the plots ready, but could not give much time to plots on account of shortness of the growing season. Farmers could not reasonably expect success unless teachers got assistance in some way, or at least encouragement. If all farmers co-operated in such a movement no doubt the value of land in the neighborhood would be increased. Agriculture should be taught in the schools from the start with good text books and trained teachers. The western provinces and Canada as a whole depend upon agriculture. Our laws and social structure all the way through would be better if all people knew something about that subject.

Normal schools and Universities should have a place for agriculture. Perhaps the lower schools in towns might be skipped where there is no room for demonstration plots, and in such cases High Schools should teach it. There is no reason why demonstration plots should be lacking in the country, when forethought is exercised at the start.

People coming to the west from various parts of the world require information and demonstration; each locality should have a special demonstration farm with a school in connection, teaching methods needed in that locality and issuing bulletins giving experiences gained at that farm and the results of experiments made. There are not enough Dominion Experimental Farms and the teaching needed should be carried further. The Edmonton district is so different from that of Lacombe that it should have an experimental farm, and smaller farms would answer as well as big ones, because most of the people are small farmers. Men who now become financially embarrassed by failure might be encouraged and helped by demonstration work, which should be in connection with our educational system. These demonstration farms should be small farms and schools having their head in the Agricultural College, which should be part of the University, but the responsibility of managing those farms should be laid on the parties operating them who can see what is needed and not on the man at the head of the educational system. A newcomer cannot always get the necessary information from farmers, because all his neighbors may be new settlers, and even those who have been a long while in the country have in many cases had to work out their own methods. These men must have information in some way in order to make the best use of the country's resources.

Alberta farmers realize that they have a fertile soil and a good climate, if they can control the moisture problem, and by scientific and dry farming methods can hold down weeds and raise a crop every year.

The Creamery business has been developed very rapidly in recent years and the present demand for milk and cream is above the supply. The milk is pasteurized. One of the pressing things is to educate the farmer in growing feed for dairy cattle. Experiments in growing tame grasses are essential, because wild pasture is

disappearing and although farmers are experimenting on alfalfa the progress is slow. Rural schools should teach about feeds, handling of milk, handling of cream for creameries and the value of testing cream. Not one farmer in one hundred understands business thoroughly until he is educated at the creamery: the danger from using milk improperly handled depends entirely on the people who take care of it.

LETHBRIDGE.

In the vicinity of Lethbridge irrigation is used as well as dry farming methods. One witness has a dry land farm about three miles south of the city and an irrigated farm about the same distance east. Wheat only is grown on the dry land farm, 700 acres in one field.

Witness believed that the future of dry land farming will be through summer fallowing, taking a crop every second year after fallow cultivation alternating to conserve the moisture. No trouble has been met from the crop not ripening before the frost after summer fallowing, though towards the Rocky Mountains there is trouble on that account. The farmers around Lethbridge are learning how to manage the dry soil. They are taking to scientific or book farming and experience this year has demonstrated what might be done when they follow strictly scientific methods. Farmers generally are not as particular as they should be in selecting seed. The tendency on irrigated land is for more intensified farming. Alfalfa is the forage crop for all live stock including poultry. There is no difficulty in getting a market for all animal products. Hens do well here and are on the increase. Witness had found no difficulty in getting good crops by good management and the demand for milk and cream could hardly be met.

If the education of boys in agriculture and technical knowledge generally can be secured, farming will be made pleasurable. With the advent of gasoline and steam engines there is a growing necessity for skilled mechanics on the farm and short courses with machines to be taken apart for illustration would be useful. Automobiles for transportation will be generally used for hauling milk and other products to market. Steam and gasoline plows are used and turn from 12 to 14 furrows followed by a packer and a disk, with a harrow behind the disk so that one trip makes the soil ready for the seed drill. With the steam plows about 10 men and 40 horses are displaced by 4 men and the power tractor, about one half the cost in many cases being saved besides a gain in time. There is a great waste of machinery among the western farmers as compared with those in the east. Another witness, who cultivates 2,000 acres, raises wheat only long enough to get the ground in shape to raise alfalfa and timothy. The land has been too new to put in much alfalfa. The difficulty this year in starting alfalfa was that it had to be irrigated, whereas it should not be irrigated, but should start naturally; however, he had put in 200 acres this year. The most important need in regard to irrigation is to get men who understand the application of water, how to put it on at the right time so that it will do the most good. There has been little information or literature on this subject.

In the rural school nothing is being taught about how to manage soil for irrigation and nothing about dry farming, the teacher being a lady not qualified

to handle these subjects, which should be taught in the common schools. A committee of three practical men to co-operate with the teacher would be a good thing, because farmers would have confidence in them. Farmers have had lectures and bulletins on dry farming but not on irrigation. They do not know what they can do and they want to know. All that the farmers have learned has been to go at irrigation in a blind fashion and profit by mistakes. They ought to have information on construction of bridges and all work pertaining to irrigation.

Medicine Hat.

In the vicinity of Medicine Hat the Alberta Government made a start by a demonstration farm about two miles west of the city.

A great many people in the section have adopted dry farming, realizing that the only hope of success with the small local rainfall is to conserve the moisture for two years in order to produce one crop.

A farmer who had been a ranchman testified that of late years settlement was crowding out the ranches, a large foreign element, chiefly of Germans, being engaged in grain growing. Their main need is better work; some public instruction might be all right; they might be taught by lectures by competent men. A demonstration farm would be useful in showing them what could be done. Witness did not think the school was doing anything to help those foreigners in respect to their crops.

Another witness, who works 700 or 800 acres 12 miles S.E. of Medicine Hat, follows stock raising combined with growing wheat, oats, barley and rye. Summer fallowing helps out with the limited rainfall; he has no irrigation. More instruction in farming is badly needed as the farmers cannot afford to go into large experiments themselves. Farmers have been relying a good deal on getting information from the Provincial Government Demonstration Farm in the neighborhood, but it is just getting started. Institute meetings are held during winter in the city, but it is difficult for people to come from a distance. What is needed is some farm where difficulties could be dealt with by experiments and information thus gained given to farmers. Children at school could get from a successful teacher a knowledge of underlying principles such as forestry plant life, vegetables, germination of seeds, etc., and most young people would take an interest in such things and find them helpful.

BRITISH COLUMBIA.

CHAPTER LXXXVI: AS TO THE ORGANIZATION OF EDUCATION.

SECTION 1: INFORMATION OBTAINED FROM Mr. ALEX. ROBINSON, SUPERINTENDENT OF EDUCATION.

The Superintendent of Education is the executive head of the Department, and goes for his instructions to one Minister of the Government, who is called Minister of Education. The course of instruction is determined by the Council of Public Instruction, which is the Government of the day.

In 1910 the Government expended $1,917,236, a little over $800,000 in excess of the amount which was contributed directly for schools by the taxpayers in city municipalities and rural districts. The amount paid by the Government includes $206,000 for buildings, and the sum provided by the taxpayers directly also includes something under that head. The towns and cities can expend what they like, and some of them run up to as much as 8 or 10 mills on the dollar for schools. If a town wants to use more than 5 mills it has to take it out of the consolidated revenue of the town.

This Province is singular with regard to the cost of education. When British Columbia became a Crown Colony, the Government took charge of education so far as concerned the entire payment of teachers and of incidental expenses; but the rapid influx of people from the east some years ago caused the Government to throw a part of the cost of school buildings on the taxpayers. The people of districts where 10 children of school age are found are supposed to provide the school building and furnish it. When the school population increases to 20 children of school age, the Government builds a school house, but calls upon the people of the district to pay the current expenses, supply the teacher's desk, and also pay $5 a month towards the teacher's salary. The teachers are all engaged by the school trustees.

Respecting the teacher's salary, several things are considered—the remoteness of the district, the expense of boarding and the difficulty of reaching the place. The Government pays a salary as though the teacher was teaching in Victoria, though she may have only 15 pupils. The certificate has nothing to do with the salaries in the "assisted" schools; i.e., schools outside a municipality, or a regularly organized district, having between 10 and 19 children aged between 6 and 16. In the regular schools the Government pays $40 of a fixed salary per month for 12 months in the year, and supplements this by a dollar for every dollar the people put up.

In the case of regularly organized schools the building is put up by the Government and supplied with desks, the size and plans of the building being determined by the Department. If the district is growing rapidly, such as a coal-mining district, it is found economical to put up a two-roomed building, though there may be only 20 children.

The Government pays three-quarters of the entire cost of installing the equipment for Manual Training. The Manual Training teacher draws exactly the same salary from the Provincial Treasury as the High School men. There is no grant for School Gardens, and not much has been done in that direction. In isolated cases School Gardens will be found throughout the Province; but there has been no concerted action to push the matter in the schools generally. A High School course would give instruction to a larger body of students than the Normal School, but as the High School course now is tolerably heavy, the Superintendent of Education would prefer to see Manual Training taught in the Normal School.

The High School is doing Manual Training in Vancouver, but not in Victoria. Domestic Science and Manual Training are looked after pretty well; the Women's Council and the trustees are very urgent about them; and perhaps the Superintendent was not personally as urgent as he might be. He thought a great deal of that kind of training ought to be given at home, though he recognized that this being the 20th century, it is not given there. The teachers of Domestic Science are paid just the same as ordinary teachers.

Evening Schools.

The Government helps evening schools to the extent of two-fifths of the cost of teachers employed in cities and towns. The Act calls for teaching the rudiments of an English education, and the school trustees have a wide discretion. In a place like Nanaimo, if teachers decided to teach matters especially interesting to miners, that would come within the grant. The Department of Education has very little control over what may be taught in evening classes. The Government allows grants to the evening classes in Vancouver, which have largely technical courses.

Teacher Training.

The Normal School was established seven or eight years ago, the whole cost being met by the Provincial Government, which pays the travelling expenses of Normal students to and from the school at the rate of 5c per mile each way, and thus brings the school within reach of every section of the Province, the cost of boarding away from home being the only cost of the teachers-in-training. The course of Normal instruction is fixed by the Department.

The Department supplies each year more and more free text-books to pupils, and hopes in a few years to supply every book free.

How the Curriculum is Arranged.

In arranging the curriculum for this Province any criticism in regard to it is listened to with a great deal of respect, and on revision some of the leading teachers and also the inspectors are taken into the confidence of the Superintendent to talk

over the matter. There is no "popular" element on the Board which establishes the curriculum.

There is a Commercial Course in the High School, and it is very much used in the Province. If a High School Board chose to have a technical course the Superintendent would see no objection. He would prefer a technical school to be joined on to the Public School and entirely separate and different from the High School. In the case of such a separated technical school, he would leave the terms of admission very broad, would have no set examination, but would give the boys a two or three months' trial. Of course where the regular school was running he would not take them below a certain grade, but would demand, perhaps, the qualification of High School entrance. Boys between 13 and 14 have to be very carefully managed, and if they are hard working and careful at that age, no one knows what they may turn out to be. He did not think it was the difficulty in High School work that kept boys away from it, but rather something else.

The Superintendent thought that a technical school to start with should be a day school, with room for evening pupils.

The Superintendent had no doubt that the large amounts paid by the Government of British Columbia in the past had destroyed local initiative, but he did not think the Government paid too much now, for the local taxes were pretty high. It is most difficult to persuade the older portions of the Province to put up any more money themselves.

Technical Education Should be Uniform.

The Government has done nothing to establish Technical Education as such in the Province, but has laid the foundation by pushing the subject of Drawing in the schools, which is essential.

As to the technical schools, that may result from the work of this Commission, the Superintendent thought the policy should be uniform; the system standardized as far as possible after consulting the various Provinces; and the courses also should be similar. The cost should be met by the Provincial Government, and the control should be central and not left in the hands of local Boards of School Trustees who, however admirable, should not have control of Technical Education. The general jurisdiction over this subject should be vested in the Federal Government. He feared that at the end of 8 or 10 years technical schools might die for want of funds, or something else, if they were left to be maintained by Boards of School Trustees.

The Act establishing the new Provincial University provides for different courses. The University will be in competition with eastern Universities, to which over 200 young people from British Columbia are now going, hence it must be strong on the science side, fruit growing and mining. There is a great dearth of competent men in the latter industry, mining engineers being missed most of all. Hence the School of Mining as well as the School of Agriculture of the University will be very strong.

The University Act provides that that institution shall be as free as the Public Schools of British Columbia, no fees being charged.

SECTION 2: MANUAL ARTS IN BRITISH COLUMBIA SCHOOLS.

In the School Law for the first time there is a course or department of Manual Training in the High School. This (1910) was the first year the Government gave any aid towards the opening of such centres; and they pay not less than $\frac{3}{4}$ for the necessary equipment where schools are opened for the first time.

The Inspector of Manual Training visits different schools in the Province and gives courses of instruction extending over six weeks after school hours and on Saturdays to teachers, with special lessons as to how handwork instruction should be imparted. These courses are in Card-board, Clay Modeling, Raffia Work, Drawing and Wood-work. It is optional for teachers to take them.

Manual Training.

There are now, (1912), 31 Manual Training centres in the Province, with 5,299 students.

Vancouver has in the lower grades in the schools "quite a bit" of hand-and-eye training. From 10 years upwards there is Manual Training for the pupil after he reaches the Third Reader. There are 10 centres equipped and conducted by one head instructor and 8 assistants in the Public Schools, and 2 assistants in the High Schools. The Public School course is in wood-work, and the High School course in wood-turning, (a three years' course).

In Victoria a school boy gets Manual Training from the time he enters the Third Reader, age about 10, until he reaches the High School, age about 14 to 15. There is no kindergarten in the Victoria schools. The children are taught clay modeling, drawing and color work. The clay modeling stops in the primary grade, and there is a gap in regard to hand manipulation from that time till the beginning of the other work. The drawing is continued right through to the High School. Sewing is taught to the girls almost from the primary division up to the time they enter the High School. Girls get Domestic Science and sewing and cooking at the same time that boys go to Manual Training. Provision is made for 1,400 boys with half a day per week each in Manual Training.

The City Superintendent of Schools thinks boys who have left school would avail themselves of an evening school, and that they would be very much benefited by instruction in drawing, mechanical drawing, color work, etc. Several boys are studying electrical engineering. He thought a part-time school would be successful. The numbers of boys and girls entering the High School are about even at the beginning, but the girls remain longer; a great many boys leave to go to work before completing the course.

New Westminster schools had kindergarten work; and two years of Manual Training work for 200 boys. The school Principal was making extensions to accommodate about 100 more boys. There was no Household Science in the schools.

Household Science.

In 1912 there were 15 centres in the Province, with 2,180 pupils. The Chief Instructor of Household Science in Vancouver has 5 assistants, who give all their time. Thirty-seven Public School teachers give one-half day per week to sewing. There is sewing in the High Schools during spare periods.

Line of Development Needed.

Mr. Harry Dunnell, Inspector of Manual Training for the Province, in his report for 1911, referred to the Commission's visit the previous year and added:—

They probably brought Manual Training as a school subject more before the people than has been done since its introduction in 1900. Whether or not the country is ripe for the introduction of different forms of technical education we shall soon learn from the report about to be presented to us by the Royal Commission on Technical Education.

It is my firm belief that we should press on with the teaching of handwork in our schools from the First Primer to the High School, and also in our evening schools. The work should have a progressive character, starting with paper folding and cutting, and leading on through clay modeling, paper and cardboard modeling, woodwork and metal-work. A few schools attempt to give a continuous course of work, but these are few and far between.

If technical schools are opened in the near future, a great advantage will be given the students if they have had a careful course of handwork in their school-life. On the eve of the development of a great Province, it behoves us to look about and examine ourselves, and ask ourselves the question, "Are we doing all that we possibly can to train our boys so that they will be able to take up the great burden of successfully developing and building up this great Province of British Columbia?"

SECTION 3: INFORMATION OBTAINED FROM Mr. WILLIAM P. ARGUE, CITY SUPERINTENDENT OF SCHOOLS, VANCOUVER.

The Manual Training work, including Domestic Science, in no way interferes with the attention and progress of what are considered standard subjects on the curriculum; that is, the pupils will do the manual work and also such other work as if their Manual Training had not been given; one supplements the other. In the shortened period, the children make just as much progress in the other subjects. With a large proportion of students attendance at these classes is a pleasure; a few require the exercise of the compulsory law. The work in the High School covers three years, but only along the line of wood-working for the boys and garment-making for the girls.

There have been applications for extension of industrial training to other lines not now represented. The expression of opinion has been marked in that direction. For those going into industries or agriculture there would be the advantage in the pupils being dexterous with their hands.

Very few of the young men, but a large number of the young women, go on to the Normal School to prepare to teach. Possibly those who go through the course of Manual Training in the elementary schools and take up the wood-working in the High Schools for three years may be reasonably well equipped to teach young children, but there are very few of those going into the teaching profession.

A number of schools this year had a School Garden; and flowers and vegetables were planted, the planting and attendance being done by the children under the

superintendence of the teachers. The experiment was a success. There is correlation between the Nature Study side and the Art side. The Art bulletin, sent out every month to the teachers, correlates that Nature Study work with the Art work, and one is intended to help the other.

The Provincial grant for the Manual Training or Domestic Science instructor is the same as for a regular teacher on the staff.

The Government pays from two-fifths to four-fifths of the salary of the instructor in evening classes according as the work is done in cities of the first class or rural districts, cities getting two-fifths and rural districts four-fifths of the salary. Cities of the third and fourth class are graded in proportion.

The evening schools in Vancouver were established and in operation before the Provincial Act authorizing night schools, and the Act was in a large extent framed with Vancouver in view. The Government have been very liberal in their interpretation of the Act to permit any subject for which there may be a reasonable demand. The City Superintendent certifies in regard to the character of the work done in the night schools. The payroll, and the statement of teachers and their certificates are sent over to the Department at regular intervals; so that in connection with the evening schools there is local control, practically local administration and the grant-in-aid with no limitation as to the work except that it satisfies the Department. The Department accepts the report made by the Superintendent of Schools for Vancouver.

Quite a large number of boys and girls leave the school here at 14 without going to High School. The experience of eastern cities will be repeated here—there are a number of boys who leave at 14 because they are somewhat behind in their classes; they see no reasonable hope of getting up the entrance to High School; yet when they leave the schools they do not go to any satisfactory employment. If a school were organized where the bulk of the attention was given to manual instruction by which they might be fitted more directly for the trades, these boys and girls might be induced to remain in school for a longer period. When they are employed during the day night schools are essential.

The High School course is a three years' course. In the first year there are two courses open to pupils,—what is called the preliminary course carrying Latin and one other language, French or Greek; and the commercial course carrying no language. In the second year (the junior course) there are practically two courses,—the course leading to matriculation and carrying two languages, and the commercial course. In the third year there is only one course, leading to matriculation, which calls for the languages of the matriculation examination. The High School has two purposes,—as a finishing school and as a preparatory school for higher institutions. It is a finishing school to a large number, and it is said that a large number of our pupils drop out of the High School because it does not provide them with what they need when they go out into life. The High School should meet the needs of all; and if necessary such branches as they have in Winnipeg,—carpentry, ironwork, plumbing, etc.,—should be introduced. That is in the manifest interest of the people and industry. It will require some change here to do that.

The health of the children is of great importance in connection with the industrial efficiency of the workers. There is a marked improvement in the health

of the children now, due to the removal of adenoids, etc., brought about by the medical inspection under the School Board. A census was taken some time ago and it was found that there were about 20 children who ought to be taken in a class by themselves as mentally deficient; and steps have already been taken to provide for that class, which will be in operation in January. The doctor employed by the School Board has no private practice; he gives his whole time to the School Board.

Evening Classes in Vancouver.

Very effective work is being done in the evening classes in Vancouver.

The classes are established to enable young men and women to continue their education beyond what they have received in the Day School, and to further train their intelligence for the successful prosecution of the trade or occupation in which they may be engaged. The classes are open, without restriction, to any pupils over 14 years of age who are regularly employed during the day.

There are preparatory classes in English, Arithmetic, Bookkeeping, Drawing, Geometry and Mensuration.

Other subjects in advanced classes are Shorthand, Architectural Drawing and Designing, Building Construction, Carpentry and Joinery, Quantity Surveying, Sheet Metal Working, Machine Construction and Engineering Drawing, Prospecting, Forestry, Drawing and the Decorative Arts, Drawing from Life, Modeling for Stone and Wood Carvers, Plaster Workers, etc., Music, Cooking, Dressmaking and Sewing, Citizenship.

When the Commission visited these classes we were impressed with their intensely practical character, the enthusiasm of the teachers and the interest of students.

SECTION 4: INFORMATION OBTAINED FROM Mr. JOHN KYLE, INSTRUCTOR IN DRAWING AT THE NORMAL SCHOOL AND FOR THE PROVINCE.

The teachers-in-training at the Normal School get three-quarters of an hour of Drawing per day. Many come fairly well prepared, some with very little preparation, and some with none at all. Those who have had Drawing from the primary grades upwards make very much more rapid progress than those who have not had it. Children should be taught systematic Drawing as soon as they get to school, at about 6 years of age. In the British Columbia schools, children begin with color, as it is found that they see things better in the mass of color, than in outline.

Children of five are not too young to begin to draw and reproduce form and love good form, and try to express what they mean to say by the brush or pencil. The inspectors of Drawing try to teach the teachers to correlate drawing with other subjects, such as Nature Study, English and Geography, and it is made as far as possible part of the whole curriculum. It has also a refining influence on the pupil, like music.

The work of a little girl of seven who had had one year of color work would compare favorably with the work of a Normal School student who had come without

Drawing. After six lessons the Normal School student would be more proficient; but some students who had had no previous training are no further on than children. Some who have the mental ability, but who have not done any Drawing before, learn it very quickly. In trade and commerce Drawing is the language of the artisan, the tradesman, the workman. It is by Drawing that he expresses what he wants to say. It is taught with that end in view right through the school.

Evening Schools.

In the evening schools 17 subjects are covered, and there are 43 teachers. Nearly all of those who teach the preparatory subjects, such as English and arithmetic, and book-keeping, are day-school teachers; the others are all practical men who are engaged in the industries during the day. There are 7 centres, fairly conveniently located, but in some cases pupils have to go a long way for the particular subject they require. If students could attend classes in a well-equipped central institute for the periods, there would be a great difference in the enthusiasm shown for evening schools. Where there are hundreds of students going to one centre there is a social atmosphere which is very desirable, whereas small classes held at different places, in unattractive premises, do not hold the pupils, and there is a decided loss of *esprit de corps*, through the smaller numbers due to the lack of a central institution. There would be advantage if all the courses could be held in the same building. In the building trades, for example, there are carpentry and joinery, building construction, quantity surveying and mechanical drawing, all in different places. They ought to be in one section, where the teachers could consult one another and correlate the subjects and where the students could have intercommunication.

The interest here in the evening classes is not quite as keen as in England; the schools here have not the same advantages and equipment. "We have been working under adverse circumstances quite a lot. I have seen many employers of labor. Some of them would not give their men the syllabuses of work we issued. Other men have been just as anxious as could be. It was ignorance on the part of the master that made him refuse to give the syllabuses to the men. The industries here would be helped in every case by the men going to evening school." The employers as a rule were very friendly, and gave the syllabuses to their men or put up the cards in their works.

SECTION 5: TESTIMONY OF A WOMAN SCHOOL TRUSTEE.

Mrs. Margaret Jenkins had been a member of the School Board of Victoria for 11 years. During that time the only changes in relation to the education of girls had been the introduction of needlework and Domestic Science into the schools and in the commercial classes of the High School. Many girls enter the High Schools especially for that course who would not go otherwise. There is room for further development in that direction. The Domestic Science in the Public School extends only for two years. With great advantage girls might be given a course of four years.

The School Board has been making progress along the line of Physical Culture, and the addition of Singing in the Public School curriculum.

The Women's Council were the first instigators of the Domestic Science Department, furnishing the equipment, the Board providing the teacher. In witness' opinion the Women's Council should be consulted in planning the course of study for girls. She thought Domestic Science a good form of education for a girl, and that it has cultural as well as utilitarian value, making her a better all round woman, better housekeeper, better mother, and equipping her for life better than by any other means. Her great regret was that Domestic Science is not carried on by girls of the senior grade, and not continued in the High School, as it is a most important part of the girl's life. She believed a remedy would be applied to that state of affairs very shortly. She was in favor of a four years' course in needlework.

In answer to the inquiry whether the course was not already too heavy, she preferred to drop other things in a girl's education for the sake of those two—Domestic Science and Sewing—which she thought highly essential for home making. She would give an option in favor of those subjects right to the end of the course. She believed that the School Board should be composed of ladies to the extent of one half of its membership. In her long experience on the Board many cases and many things had arisen that could only be effectively dealt with by women.

SECTION 6: THE HIGH SCHOOLS.

There are in British Columbia 22 High Schools with 74 teachers and 1,738 students. Besides these there are 9 superior schools, that is, Public Schools with two or more teachers in which the two years' junior work of the High Schools is being done, the number of High School students in those being 104.

Very little technical training has yet been undertaken in any of the High Schools. A Commercial Course of 2 years' work is being taken by 101 students in 3 different schools. Those who have already graduated and gone to work have profited much by their 2 years' training, but those well qualified to judge believe that 2 or 3 years of ordinary High School work, followed by 1 year of commercial work, would enable the young people to enter the business world at 18 or 19 with better prospects for a successful career.

In Vancouver High Schools, Manual Training is taken voluntarily, 255 out of 395 boys attending 2 hours per week, and the results obtained are good. About the same number of girls are taught needlework by a teacher who gives all her time to this work.

There is a strong sentiment in favor of Technical Education in British Columbia, but in many cases it is not as rational as it is strong, in the opinion of the High School Inspector. Too many people think that the pursuit of any line of study is practically useless unless it supplies the student with a fund of knowledge that will make absolutely certain the earning of money rapidly and at an early age; they lose sight of the fact that to learn how to live is as important as to learn how to earn a living, if not more so.

Many people to-day insist that there is very little in the High School course to help young people for their lifework, so that students who need no encouragement to do so are induced to drop out of school as soon as the law allows, at 14 years of age, and begin life's work with very little knowledge and very little skill. While it is possible that the present school curriculum might be modified and made more suitable for students who will not enter the professions, the Inspector thought extreme caution should be used in making modifications. While a certain amount of technical training of High School students might be insisted upon, it should be simply complementary to and not a substitute for the work now being done. There is no good reason for allowing, much less encouraging, boys and girls to become breadwinners at 14 and 15 years of age, in view of all our modern labor-saving machines, and with more intelligent and more skilful artisans than ever before as the result of the teaching in our present Public and High Schools and prospective Technical Schools.

There should be a few intellectual subjects in the first two years' work of the High School, and compulsory technical training should be comparatively limited, and of a character calculated to develop powers and habits essential in every walk of life, as well as to popularize those vocations in which the majority of people should engage. The Manual Training and Domestic Science and Art work carried on in a few of the best of our Public Schools, with technical training of this character, the Inspector thinks might be continued with advantage for two years in the High Schools.

The Nature Study of the Public Schools and the Botany and Physical Science of the High Schools afford good mental training, even as taught in our schools to-day, though the facilities in rural schools and High Schools in smaller towns are very poor and should be improved. The course might be made more technical, more practical and more interesting, leading the youth from the School Garden to the orchard or the farm.

In the first year of the High School studies, in which matriculation work is now being taken, considerable optional work in the line of technical subjects might safely be included, provided it be a fair equivalent for the subject whose place it has taken.

The work of the High Schools along the lines above suggested should prepare students well for pursuing any course open to them in the new Provincial University, which it is expected will give considerable attention to Horticulture, Agriculture, Mining, etc.

The course of study thus far advocated is for students in populous centres whose circumstances will permit of their studying until they are 16 or 17, or even later. In small towns with a score or two of High School students, there is a likelihood of special teachers being employed to teach a few hours per week. If evening schools for technical work were established at such points to help those who can no longer go to day school, the teachers engaged might do the technical work with High School and Public School students, preparing them even for matriculation into the University. In larger centres of population the technical evening schools must be the hope of bright, intelligent and

ambitious students, whose circumstances compel them to leave school at, say, 14 years of age.

The Inspector submits the above as the best course of study, not for the chosen few, but for the vast majority of our nation.

SECTION 7: THE McGILL UNIVERSITY COLLEGE OF BRITISH COLUMBIA.

This College at Vancouver, B.C., exists under powers granted by the Legislature in 1906, and its object is the higher education of men and women. In respect of courses of study and examination, it is deemed a College of McGill University, and the instruction given to its students is to be of the same standard as that given in like subjects at McGill University at Montreal.

Course in Applied Science.

The College offers instruction in the first, second and third years of the Arts Course, and in the first and second years of the Course in Applied Science of McGill University. The standard of work is that of McGill University, all the examinations being conducted by the Examining Board of that institution, which includes all the members of the local staff. Candidates passing the examinations at the end of any year in either Arts or Applied Science are admitted to the next year of McGill University without further examination.

The following subjects are prescribed for all courses leading to the Degree of B.Sc. in Applied Science:—(1) English Grammar. (2) History and Geography. (3) Arithmetic. (4) English Composition. (5) English Literature. (6) One of the following: French, German, Latin, Greek. (7) Algebra, Parts I. and II. (8) Geometry, Parts I. and II. (9) Trigonometry. (10) One of the following:—Physiography, Botany, Chemistry, Physics, a language not already chosen.

Double Course.

Students who wish to obtain the degree of B. A. and B. Sc. (Applied Science) in six years will spend the first three years in Arts before attending any regular classes in Applied Science, except the summer classes. The student will then enter the Faculty of Applied Science, and devote the remaining three years entirely to the work of this Faculty. The special summer courses mentioned are necessary in order to overtake the work in Descriptive Geometry, Drawing and Shopwork, which form part of the regular courses of the first two years in Applied Science. This work must be taken in two periods of one month each (in the month of May), at the close of the regular work of the First and Second Years in the Faculty of Arts.

Shopwork.

The course in shopwork is intended to afford some preparation for that study of workshop practice on a commercial scale which every engineer has to carry out for himself. With this end in view, the student works in the various shops

of the department, and completes in each a series of practical exercises. He thus obtains some knowledge of the nature and properties of the various materials he employs; he receives systematic instruction in the use and care of the more important hand and machine tools; and he acquires some manual skill.

The instruction thus obtained must, however, be continued and supplemented. For this purpose students are expected to spend the greater portion of each long vacation in gaining practical experience in engineering workshops outside the University.

Students are required to read and make notes of selected portions of certain text-books, and articles in technical journals, illustrative of the work done in each shop.

In connection with his shop work each student is required to keep a record of his work. These records or notes are made on standard forms. These are handed in to the Shop Instructor at the close of each period of work, and, together with diligence and the results of a brief written examination, form the basis on which credit for shopwork is assigned.

The work of the various shops is carried out under the direction of the Professor of Mechanical Engineering. The following are the subjects of instruction:

Carpentry and Wood Turning.—Sharpening and care of wood-working tools; sawing, planing and paring to size; preparation of flat surfaces, parallel strips, and rectangular blocks; construction of the principal joints employed in carpentry and joinery work, such as end and middle lap joints, end and middle mortise and tenon joints, mitres, and dado and sash joints; dovetailing; scarfing; joints used in roof and girder work; wood-turning; use of wood-turning tools.

Smith-work.—The forge and its tools; use and care of smiths' tools; management of fire; use of anvil and swage-block; drawing taper, square and parallel work; bending, upsetting, hardening and tempering tools for forge and machine work; tempering drills, dies, taps, and springs.

Foundry Work.—Moulders' tools and materials used in foundry work; the cupola; the brass furnace; preparation of moulding sand; boxes and flasks; core-making; use of core-irons; bench moulding; blackening, coring and finishing moulds; vents, gates and risers; floor moulding; open sand work; melting and pouring metal; mixtures for iron and brass casting.

Machine-shop Work.—Exercises in chipping; preparation of flat surfaces; filing to straight edge and surface plate; scraping, screwing and tapping; use of scribing block and surface gauge; marking off work for lathes and other machines; turning and boring cylindrical work to gauge; surfacing; screw-cutting and preparation of screw-cutting tools; use of turret lathe; taper turning; machining flat and curved surfaces on the planing and shaping machines; plain and circular milling with vertical and horizontal spindles; gear-cutting; cutter-grinding; drilling and boring; use of jigs; grinding flat and cylindrical surfaces; cutting tools for hand and machine; their cutting angles and speeds; dressing and grinding tools.

CHAPTER LXXXVII: AS TO INDUSTRIES, WORKERS AND EMPLOYMENT BUREAU.

SECTION 1: INFORMATION PRESENTED BY Mr. WILLIAM DALTON, ON BEHALF OF THE COUNCIL OF THE VANCOUVER BOARD OF TRADE.

This Board of Trade welcomes the enquiry of this Commission as a step in advance in regard to education.

As a body of merchants, manufacturers and traders this Board is very much concerned that artisans engaged in all trades should be properly and scientifically trained in their respective trade or calling.

The Board, whilst deeply interested generally in educational matters, has no Committee which takes special care of a subject of this character.

The Board feels that Technical Education should be given along the lines which will tend to increase the trade usefulness of this city both as a commercial centre and as a port, and that the student should be able, after passing through the schools already in operation, to continue his studies in a more practical form than he is enabled to do under the present organisation.

The Board believes that Vancouver in the coming years will become a great port; and such trades as are allied with the shipping industry should be taught and encouraged, such as ship building, ship architecture and the trades which naturally circle round such a business, such as engineering, both steam and electrical. Navigation should also have a very considerable place in a Technical School. Captain Eddie, through the Department of Marine and Fisheries, gives free lectures on Navigation in the city during the winter months.

The principal motive power used by industries seem to be electrical. As this seems to be an electric age, facilities should be furnished to give further practical teaching to students of this important subject. The British Columbia Electric Ry. have a large generating plant on the North Arm of Burrard Inlet deriving their water power from two lakes there. The Western Power Co. are spending a very large sum of money in a generating plant at Stave Lake and another large plant is to be built at Chilliwack for electric tramway purposes.

Mines and mining must before very long take a much larger place in the industries in this Province; and there is at the present time a very large development in mining in the Province. Mining engineering, assaying, metallurgy, practical mining management and allied subjects should be taught to students desiring to enter those professions.

The lumber industry is one of the principal industries of the Province and, carried out on the vast scale on which many Companies are operating, calls into use many trades. Practically all the machinery used in the saw mills of the Province is imported from the East.

Forestry and agriculture should have their place in a Technical School.

An immense amount of money is invested in the fishing industry. It is a source of great profit to the community. Education on the proper method of conserving this industry should be given.

In a young, growing and vigorous city like this, building construction in its broadest sense should be a very important subject. Steel and concrete construction seems to be the construction of the future and very special attention should be given to this.

Whilst we live in a very practical age, the Board believes that the artistic side of education should not be neglected, and that a School of Art should have a place in educational advancement.

SECTION 2: INFORMATION OBTAINED FROM Mr. HERBERT C. BENSON, PRESIDENT OF THE TRADES' AND LABOR COUNCIL, VANCOUVER.

There is not a trade to-day but what would be benefited by a system of Technical Education along certain lines and under certain restrictions. The organized workman would be against Technical Education if he thought it was going to be a means of furnishing employers with strikebreakers in time of trouble. That is one of the objections among workers. The evening schools such as are now in Vancouver could not hurt the worker by flooding the market with workers and thus reducing wages. Every worker in the city should attend those classes. It would be good for the manufacturers if everybody could be well trained for his job. If it would increase the wages of workers and decrease their hours of labor, as well as improve their living conditions, it would be beneficial for the workers.

Technical Education should be supplementary to factory education, that is, with the theoretical supplementary to the practical.

In the opinion of the witness, the Government, before instituting Technical Education, should try and devise some means of controlling the system of apprenticeship, whereby apprentices shall be given by their employers a thorough working knowledge of the trades which they wish to learn. This is not the case at the present time. A boy should be given the chance of learning his whole trade, from the bottom to the top, instead of being made a specialist in one line. If the employer wishes the country to supply him with skilled workmen, he should be willing to do his own part, even at the cost of waste of time and restriction of output, by allowing some apprentices to go into the shop and learn the trade.

In the opinion of the witness, Technical Education without the practical experience is useless. A man must have the practical first, and then the technical,

or both together if possible. Another condition under which organized Technical Education would be favorable to the workers would be if it were placed under the School Boards, or some similar body. The School Board in Vancouver was doing its duty earnestly and thoroughly, and the workers under such circumstances would not have much to fear. They would feel confident that the matter was being managed in the right way. If Technical Education is inaugurated, it should be under men who are thoroughly responsible and can obtain the confidence of the people.

All teachers in the technical institution should have learned the trades themselves, as they cannot impart the knowledge otherwise. A teacher who has been through the practical as well as the theoretical side will produce much better results. He must understand the practical application of the theories he teaches.

SECTION 3: INFORMATION OBTAINED FROM Mr. JOHN PECK.

Mr. Peck is Chief Inspector of Machinery for the Provincial Government, and Examiner of Stationary Engineers.

At present stationary engineers are obtaining the information required for their examination largely through correspondence courses, and through the British Columbia Association of Stationary Engineers, which is an educational institution. They assist each other to obtain the information, and lectures are given by outside people and by the higher grade of stationary engineers to those who are working to obtain certificates.

Engineers should be skilled, as they are responsible for life and property, and unskilled workmen are sometimes careless through ignorance of the importance of what they are doing. A slight defect in the structure, which may seem quite unimportant, is liable to produce very serious results. In that way, intelligence all along the line of construction would be beneficial to life and property throughout the Province.

The first need of British Columbia, in the witness' opinion, is the evening school. Large numbers would be very glad to avail themselves of its advantages. Following that, a technical institution should be provided, where those men might get a full course of instruction extending over several months, or in the winter, when work is slack. This would enable the ambitious men to work up for a better grade of certificate. Correspondence instruction is useful in certain lines, particularly in training men to express themselves in writing, which is necessary for examinations. A correspondence school would be useful to those living at a distance from technical schools.

The witness stated that he had been interested in technical education for a great many years, and that he quite agreed with the statements made that purely technical education, without experience in a shop in practical work, was of very doubtful value.

He would favor government supervision of apprentices, with a part-time plan of training. He had been manager and owner of an iron works before becoming inspector, and quite agreed that while a technical institution apparently does very

good work, and theoretically should do very good work, as a matter of fact manufacturers are unwilling to accept purely technically trained men.

The witness said he did not like the people of this country being left behind by others coming in when our own people with reasonable facilities would get ahead. He believed we had people in Canada above the average in intelligence, but when outside countries are doing so much, if Canada neglects to do its part, our own people are going to be superseded by outsiders who will come in and fill the positions.

SECTION 4:
INFORMATION OBTAINED FROM Mr. JOHN G. LISTER.

Mr. Lister was carrying on evening school work in connection with the British Columbia Electric Railway Company.

The Company have fitted up a complete lecture room with all appliances, and give Mr. Lister *carte blanche* over the whole of the Company's equipment, both portable and stationary, so that any apparatus that is portable may be brought into the lecture room. In the other cases the class is taken to the apparatus.

The classes are limited at present to employees of the company. Attendance is purely voluntary. It is not strictly speaking a company institution, as it is run by a committee, the Company providing the funds and equipment and encouraging it in every way. The equipment is loaned by the Company for instruction purposes. The Company would let the plant be used under the supervision of an approved person; it is necessary to have an individual personally responsible.

SECTION 5:
SUMMARY OF OTHER TESTIMONY AS TO APPRENTICES.

The Ross & Howard Iron Works, Vancouver, have a moulding shop with 25 moulders and 4 apprentices, machine shop with 14 men and 3 apprentices, and boiler shop with 16 men and 3 apprentices.

There are not enough workers trained to keep up the supply for the works. The firm have to depend on importation from outside. Two or three of the men took International Correspondence Courses. The mechanics cannot read drawings; it would be much better for the firm if they did, and they would be better fitted to get more money. If there were night classes especially for that craft, it would be better for the boys than the men. It is not easy to get foremen, or thoroughly trained men at all. If the men went to night school, they would gain knowledge and develop ability to become good foremen.

Other testimony states that apprentices if attending evening school would be better workmen thereby. A knowledge of plans in the building trades, and of steam and strength of materials in the iron trades, is of great assistance.

The only way to get the boys trained is by laying down the rule that they are not to be kept at one machine more than 6 months, and that they are to learn to

operate a certain number of machines during their apprenticeship. In the machinist trades, apprentices are often kept on one job for as long as a year and a half, when they could learn the process in two weeks. In boilermaking they are kept on heating rivets, which is very soon learned, and have no opportunity of becoming proficient in any other branch of the trade.

In McKinnon's Boiler Works at Victoria, there are 3 apprentices to every 10 men. They would all like to go to evening school.

Apprentices in machine shops serve 5 years, and work under a fixed schedule of wages.

There is no apprenticeship system in the coal mines, but it would be much better if boys were put through a course.

Men do not now get as good a knowledge of printing as they did before the introduction of power machines. Formerly the apprentice came from the country office. The man in the country weekly office had to do everything, whereas in the city he specializes.

The majority of the witnesses were of the opinion that it would be a good thing for apprentices to go to evening classes; and that if they did not work more than 8 hours a day, they could attend without any injury to health. One witness favored compulsory evening schools for all apprentices.

The reason that boys will not be apprenticed is that they can earn more money at other occupations, and do not wish to be bound.

The view was expressed that boys should not be allowed to work as helpers without being bound apprentices.

Since the apprenticeship system has largely broken down, the only way to prepare competent men is through technical education.

The limitation of the number of apprentices, according to one witness, has been misconstrued both by the employers and the public. The object of limitation has been to secure better opportunities for a limited number, rather than to merely limit the number. The education of apprentices has been the most frequent cause of conflict with employers, with the exception of the wages question.

SECTION 6: PUBLIC SCHOOL EMPLOYMENT BUREAU.

The following information was obtained from MR. MCKEE, Vancouver.

A very large percentage of Public School pupils (in somes cases 95 per cent) never reach the High School, A large number of mis-fits result when boys are left to pick up such employment as offers at the time when they need to earn money. When the boy is not in his proper groove, he is not only wasting his own valuable time that should be spent in learning some trade or line of business, but he is giving very secondary service to his employer because his heart and inclinations lie in another bent. The employer is often handicapped by not knowing where to secure the desired help and is forced to take what he can get, in many cases knowing little or nothing of the prospective employee.

Therefore the School Board should provide and operate a juvenile Employment Bureau, free to employer and boy and girl and open also to those who have

not attended school but who might enrol at the district school. The Bureau would keep a list of recommended boys and girls, the latter selecting the kind of work they wish. The Principal would keep close watch on the boys leaving school, enquire into their home circumstances, advise boys and girls personally, and be the judge, as it were, as to whether their circumstances force them to go to work.

The scheme need not be announced to the school classes, but the boys would soon learn of it, when they realized that the Principal had their individual good at heart. The Principal might fill in part of the enrolment card, and in this way vouch for its validity. The Principal would speak from time to time with firms of his acquaintance who employ boys and girls, and in this way inform the public; then no further advertising would be required. The boys would be supplied with work through a central Bureau and should they be thrown out of employment they could inform the Bureau, as their credentials would be permanently on file.

The enrolment card would give the name and the date of birth, the father's name and occupation, chosen line of work and why selected, whether employed at present, where last employed, name, address and occupation of chum and whether he or the chum smoked cigarettes, name of school last attended, what grade, and where boy can be reached by phone. Recommendation and sample of handwritting should be attached to enrolment card; this card would be classified according to occupation desired.

The Bureau would furnish the boy with a neat booklet in which he could make note of his earnings and savings, with a cover design and a motto such as "Give of your best". Printed notes in the book would request the boy to report progress and financial standing in December, advise him to open a bank account, and also to attend night school for the particular study in which he is interested.

If the boy has reported faithfully until he is 18 and provided he has done well, the Bureau might supply him with a certificate of some kind, indicating that he is a desirable and industrious young man; this should be of much service in case he were thrown out of employment. The Bureau would also telephone the employer from time to time, enquiring about the boy.

The advantages of this plan would be as follows:—

The School Board would be in touch with the boys and girls, which would have a tendency to make them work harder at school, for they would have something to work for. It would improve the tone of the whole school, particularly the senior classes.

The Bureau could help girls from outside points to come to High School who would be glad to do some housework in return for board and room.

It would save the employer loss of time and worry and expense in advertising, because he would be able to secure a recommended boy on short notice.

It would help the boy to better his position should he desire to do so; and it would encourage the boy to give his best services to his employer, for he would be told that the Bureau would watch his progress and ask his employer for his opinion from time to time. Should the boy be placed in such a position that he could

attend school again, he would make a most desirable pupil; the Board would be in possession of a permanent and interesting record of the boy's progress; and the careers of these poor boys would have an educational value.

On the other hand the scheme might encourage some to leave school early; but the question is, can we help the boy who is forced to go to work? It might also have a tendency to help the best boys only; but can we not help also the boy who helps himself? The Principal would be in a position to induce the boy to remain as long as possible at school, or to start school again when possible. For the boy who could not be well recommended the scheme would at least give a chance to make good. Some provision might be made for boys who desire work in summer months only, and the scheme might include High School boys.

The scheme helps to solve two problems, (1) A public or High School boy becomes discouraged, has no ambition along professional lines; he is a failure as a student, simply stops school to go to work and no persuasion can keep him at school; what can be judiciously done for him? (2) What effect would the scheme have on the question of delinquency?

SECTION 7: INDUSTRIAL CONDITIONS OF WOMEN WORKERS.

The Local Council of Women presented a memorial to the Commission stating that, out of the population of Victoria, amounting to 50,000, there are 3,000 or 4,000 women engaged in gainful occupations as teachers in public and private schools, physicians, in lace-making, sewing, journalism, nursing, in libraries, bookbinding, as telegraph and telephone operators, stenographers and typewriters, accountants, clerks, customs brokers, cashiers, forewomen, saleswomen, milliners and dressmakers, domestics, housemaids, nursery-maids, cooks, waitresses, laundresses, hairdressers and those engaged in clothing factories, candy factories, biscuit-making and cigar making.

Facilities for training workers along the above lines are very limited. Apart from the professional training of those who are to teach, the hospitals where nurses are trained may be regarded as the only real apprenticeship system in the city. In millinery and dressmaking there is only partial training, as girls have to pick up what they can by observation and practice; there is no teaching. The commercial courses in the High School and private schools are far from adequate, being chiefly theoretical.

The majority of employers interviewed emphatically expressed their preference for skilled workers and stated that they were willing to pay higher wages for them.

With a few exceptions, employers were agreed that girls should have technical training along the lines by which they expected to earn their living, because in this way they had greater earning capacity and would be worth higher wages, and the expense of such training should be defrayed by public money. The view most frequently expressed was this training should be given in separate schools after the pupils had finished their academic course.

In manufacturing establishments the average wage of unskilled girls is from $25 to $35 per month, and of skilled girls from $40 to $50. Girls remain in these establishments from two to five years.

The Telephone Co. has no training department such as there is in many cities, and many of the girls would desire a previous training, especially now that the work has so increased that there is no time to train the students. The standard of telephone operating is improving.

Confectionery and biscuit manufacturers look upon unskilled labor as most expensive. A new hand is placed in charge of a more experienced worker, thus occupying the time of that experienced employee, and causing a great waste of time as well as of material.

In laundries unskilled labor is very expensive to the employers. The new girl rarely earns the wage which the scarcity of help requires to be paid. In some cases the girl may gain the proper earning capacity after from two weeks' to four months' employment.

In the book-binding department of the Government Printing Bureau, girls enter before having had High School education, and are paid $30 per month to begin with, $50 being the highest. Technical training would be considered an advantage by cultivating precision, deftness, etc. In another bookbindery technical training was looked upon as most desirable and profitable to workers, as the firm could well afford to pay double the wages to skilled hands.

Some milliners preferred girls without knowledge of the work; others favored those having had correct instruction in elementary processes such as even the most conscientious employer could not find time to give. They desired the establishment of a suitable school here.

Dressmakers have great difficulty in securing workers, and would consider technical training most useful. The girls who are now available are ignorant to a degree; and the only teaching they receive is from an "improver" beside whom they are placed. If observant and painstaking they may acquire a working knowledge of some of the minor branches, but generally they display neither self-reliance nor initiative, and may remain in the work and leave without becoming proficient. There is no time to devote to the ignorant beginner, but if she had a knowledge of sewing, understood something about fabrics, and had her eye trained to color combinations, form and design, her interest would be aroused and she would feel herself a factor in working out the plan. Thus her work would be of a higher order and her usefulness would be increased. Her powers of observation having been cultivated, she would very soon acquire the entire art of dressmaking. The pre-eminence of French dressmaking and millinery is due to the fact that France was first among the nations to introduce technical training of women. Some girls would like to attend classes in millinery and there has been a demand for evening classes in art.

Mistresses were almost unanimous in desiring house help that had been trained in domestic work; many mothers were anxious to have their daughters trained for home making; and the growing girls were nearly all anxious for technical training before entering business life.

Among the working girls interviewed many have no desire to extend their knowledge in their particular line of work and would not agree to attend any classes, either day or evening. These are invariably the more ignorant and unintelligent of their class. Others were especially anxious to improve and would gladly attend the evening classes, especially for domestic training. Some of these are Old Country girls who have had the advantage of such classes before coming to Canada.

False notions cause girls to avoid work as domestic servants and in trades and to seek office and store work as being more genteel, leaving more definite hours of freedom and greater independence. Hence there were 40 applicants for a vacancy in such a position with long hours and poor pay; while there is a painful dearth of girls for household help. This unhappy state of things can only be altered when a thorough technical training is afforded to these girls, so that they will be able to appreciate the true dignity of labor, and as a result will be more advanced in intelligence and skill.

Some practical plan by which the task of a girl who must begin wage earning at an early age can be made more proficient in some self selected calling or industry would save years of wasted life and opportunities on her part. Such training would make a more harmonious development of mind and body, produce versatility, hold out to gifted children a chance to cultivate themselves along special lines, and would make of the prospective wage earner a more valuable industrial unit. It would raise the standard of the trained worker, and prevent irresponsible and casual competition. It would be a powerful factor in the industrial development of the country, and would touch directly and helpfully the individual, the family and the collective interests of the people, and open many avenues for self-supporting women.

For girls between the ages of 14 and 16 technical day classes would be necessary, for at that age a girl cannot work during the day and attend evening classes.

Only a small portion of girls entering the lower Public School grades continue until they complete the High School course, because of indifference on their part or that of their parents, or because of necessity for earning something, The system of apprenticeship being no longer in existence, young girls who are compelled to earn a living at the early age of 14 must necessarily enter upon unskilled labor, The remedy for this condition is, education of hand and brain. These girls must have the opportunity of acquiring the means of becoming efficient wage earners, so as to earn a living in a self-selected vocation, and in providing that we are aiming at the very foundation of Empire building by giving these girls a true sense of citizenship and preparing them as the mothers of the future. Technical school training will undoubtedly establish an interest in school work, arouse ambition and raise the standard and tone of industrial life. For example, if girls in domestic service were equipped with a thorough training in domestic science and all that pertained to housekeeping and home-making, a knowledge of sanitation, household chemistry and dietetics, personal hygiene, how to keep household accounts and to market, they would enter upon their duties with an entirely new spirit. Their work would be lifted from manual drudgery to the status of a profession, just as training has elevated nursing from the old Sarah Gamp days to the present

honorable profession. They would thus make better domestics, earn better wages, lead happier and brighter lives, and later in life bring the knowledge into their own homes, with consequent better surroundings, a healthier atmosphere and more efficient wives and mothers. As the skilled worker is one of the nation's most valued assets, this training would be not only an individual, but a national benefit.

The kind of technical training suitable to the needs of Victoria would be a separate day school which would naturally attract girls not attending the High School, in which there would be training along every line to equip them for their field of labor and to specialize along some line of business, art or craft, as well as in domestic training.

CHAPTER LXXXVIII: AS TO RURAL OCCUPATIONS.

SECTION 1: AS TO FRUIT AND AGRICULTURE.

Information obtained from Mr. Maxwell Smith, Editor of the Fruit Magazine.

The main product for export from the Province is apples. Peaches are beginning to be more or less important for export to the prairie provinces. Strawberries, raspberries, blackberries and cherries are coming to the front. The main needs of the fruit-growers, to enable them to do the work effectively and profitably, are education and labor. Education should be begun in the Public School by amendments to the curriculum, giving agriculture an equal place with other studies; and it would require both book-study and a School Garden. In the fruit-growing districts they have no School Gardens of a practical sort. The cultivation of flowers is practised in many school districts as a means of study of plant life, but not from a practical fruit-growing standpoint. It would be a help to take children to a fruit grower's place once a fortnight. The fruit-grower is rooted to the love of money more than to the love of children, It is difficult to get him to take an interest in anything apart from his ordinary employment.

The Public School curriculum all over Canada is so constructed as to have a tendency to lure youth away from the farms and into the professions, and this tendency must be checked by technical courses. The first step is to give agriculture an equal place with other studies in the Public Schools, require all teachers to be qualified to teach it, and thus give child an opportunity to develop a liking for agriculture equal to its opportunity for developing a liking to become a doctor, preacher, or lawyer. To qualify the present teacher there should be special short courses. Fruit growing is developing very rapidly in British Columbia, the laws in regard to insects are very effective, grading and packing are improving. The Provincial Government is establishing a number of experimental stations in a modest way, but they are not far enough on to prove their effectiveness. The Government is giving a series of short courses of a couple of days' lectures by the best inspectors and horticulturists, but it is hard to get active fruit growers away from their daily pursuits.

The amount of peaches exported this year from British Columbia to the Prairies was more than in any former year. The chief difficulties in transportation are the pre-cooling of fruit before it is shipped and the carrying of it at an even temperature to its destination. Some growers claim the rates are fair, others think they are not.

The quickest way to get labor—though not the best from the point of quality, —is the more general employment of Orientals; the next best is to encourage

the immigration of people of our own race. The Indians of British Columbia are very industrious and faithful workers, but are not as neat and careful as are the white people or Orientals. Competent labor and plenty of it is necessary in connection with fruit growing.

SECTION 2: SUMMARY OF OTHER TESTIMONY.

Kootenay District.

Apples chiefly are grown in this district; also peaches, pears and plums. Small fruits do well, and also vegetables.

The Horticulturist from the Provincial Department of Agriculture visits the district to lecture and give practical orchard demonstrations. He is in favor of a demonstration orchard, where a successful fruit grower would show his methods of planting, etc., and exhibit his accounts.

Vernon and Okanagan.

Vernon and the Okanagan need something in the way of an agricultural school where men would learn the business of fruit growing. A technical institution giving instruction and carrying on work in research should be established somewhere in British Columbia.

A great many men in the district would be only too glad to get such training, which is most important to the fruit industry. As a rule the fruit growers send their fruit in bulk to be packed at the warehouses of the Fruit Unions. It would be a good thing to have fruit packing taught. A class was held last winter and was well attended.

The Manager of the Coldstream Estate believed an Agricultural College would be well attended, as there were always a large number of men coming to British Columbia to learn the fruit industry.

A fruit packer thought an Experimental Orchard would be of more benefit than a College, as growers have no facilities for experimenting, but the Government could run an Experimental Farm on broader lines than the growers could, and it would be of immense benefit to them. A fruit grower stated that he got assistance and information for his work principally from American horticultural papers and bulletins, and from local growers. The local school gives a good primary education, but nothing for agricultural or horticultural occupations.

A demonstration farm would be a good thing. Mixed farming is profitable in the Valley, in the districts near Armstrong and Enderby. Peaches can be shipped as far as Winnipeg in good condition. Shipments of apples to the English market have been well received, and have brought satisfactory returns to shippers and growers. A satisfactory beginning has been made in the shipments of Okanagan apples to Australia, New Zealand, China and elsewhere, the Australian and New Zealand markets being especially attractive, because the season is just suited to the harvest time in British Columbia. The North West Provinces provide an unlimited market; the city of Vancouver also provides a very large market.

SECTOIN 3: AS TO LIVE STOCK AND DAIRYING.

Information obtained from Mr. Fred. M. Logan.

Mr. Logan was the Government Live Stock and Dairy Commissioner for three years. One of the difficulties is to get suitable help for milking cows. White men coming to the Province get positions that suit them better. The milking machine has not proven very successful in small dairies. There is no difficulty in growing enough rough fodder. Along the Fraser River Valley cows can be pastured cheaper than anywhere else in Canada, the grazing season lasting about 9 months, and the grass being very succulent and well suited to dairying purposes. Clover grows wild in this country, and will continue to yield well for years. A drawback to dairying is the high price of land. If a man buys a farm with borrowed money he has to pay a large share of the revenue for interest on the investment. Mr. Logan did not know of any Province in Canada where dairying could be carried on more profitably than here, notwithstanding the high price of land. In British Columbia butter sells higher than in any other Province in Canada.

A fruit farm when properly conducted is much more profitable than raising beef, most of which now is coming from the prairie provinces. Grain growing is rather on the decline in the up country, though there is a great deal of it in the Fraser River Valley and on Vancouver Island. Grain crops grow very well, especially oats; and wheat grown here is used extensively for chicken feed. The growing of vegetables is on the increase.

SECTION 4: RURAL OCCUPATIONS FOR WOMEN.

Openings exist now in dairying, fruit growing, bee-keeping and poultry raising. The climatic conditions are peculiarly favorable for poultry. Market prices are exceptionally good. Not many women have gone into dairying, though on many farms they do the dairying work. There is a large field for women on Vancouver Island in the growing, picking and packing of fruit. Bee-keeping is practicable; money has been made by bee-keeping and the production of lavender and the growing of bulbs. The production of celery, violets, lavender and different herbs also offers a field for women.

A technical school for short courses would greatly benefit the farming community. Every day women are coming to Vancouver Island from India, China, Japan or Australia, and they are most eager to learn what they can, but there is no place where they can go for information or for a short course in dairying or poultry.

At the Women's Institute the women are most eager to learn about Domestic Science or anything that will help them to earn a living of their own, which shows the interest that would be taken in a technical school in British Columbia. One established at or near Victoria would be of immense benefit to the people of the city and the whole Island.

The ideal farm life is a beautiful one,—the soothing sounds of the country and the twittering birds, the children engaged in happy pastimes outside, the house-

wife filling the larder with apples for the winter, the home life around the country fires, but the farm home is too often a house where they are living on canned foods. It is hoped that the Commission will remedy that condition.

The work of organizing Women's Institutes in British Columbia was started in September, 1909, and was taken up with great enthusiasm in different parts of the Province, receiving the hearty co-operation of the men in several districts. In 1910 the Provincial Department of Agriculture gave a grant of 50c. for each member enrolled in the Women's Institutes as is done in the case of Farmers' Institutes. In December 1910 there were 21 Women's Institutes in British Columbia, the total membership being 590.

CHAPTER LXXXIX: AS TO FORESTRY PROBLEMS.

Information obtained from Mr. Judson F. Clark, Forestry Engineer.

The danger from fire in the coast forests is almost entirely limited to cut-over land. A short course would be of great value to fire rangers. Nothing is being done in the Province to conserve the young growth after the mature trees have been cut; to do that would be a good policy for the State. There is no Forestry Department in connection with the Provincial Government. Nothing has been done to study the preservation of trees. This is the greatest field in the world, excepting Western Washington and Oregon, for the study of forestry problems.

In Vancouver there has been a demand for instruction along at least three lines in connection with evening classes: (1) how trees grow, forest geography, the conservation of the public domain; (2) from woodworkers for a knowledge of the physical properties of woods, their comparative strengths, elasticity and toughness in relation to their uses; (3) from cruisers who want to know the best way of estimating and valuing timbers and also learn topographical survey methods. This could be taken up in connection with the instruction of fire rangers. If there were a museum where forest woods could be shown accompanied by charts, it would be a means of getting the resources of the Province known; of course Vancouver is the place to have that.

Protection from forest fires is to be had by training fire rangers, also by disposal of the débris. Railways, which are a great cause of forest fires, should be compelled to use every possible means to prevent fires, even to the extent of burning oil in their engines. But the ranging system for protection could not be done away with safely, even if the railways used oil.

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Campbell, John W., Chatham, N.B.
Campbell, William, Goderich, Ont.
Cann, Capt., Yarmouth, N.S.
Canniff, C. M., Toronto, Ont.
Cantley, Thomas, New Glasgow, N.S.
Carbauld, Charles, Orillia, Ont.
Caren, John, Lindsay, Ont.

Carlisle, Col. George C., St. Catharines, Ont.
Carmichael, Miss Caroline, New Glasgow, N.S.
Carr, Frederick, Edmonton, Alta.
Carscadden, Thomas, Galt, Ont.
Carson, William O., London, Ont.
Carter, A. J., Fernie, B.C.
Carter, William H., Winnipeg, Man.
Carter, Dr. William S., Fredericton, N.B.
Cartwright, Miss Ethel, Montreal, Que.
Casey, John P., St. Catharines, Ont.
Cassavant, Samuel, St. Hyacinthe, Que.
Casselman, George, Brockville, Ont.
Cass, Edward, Winnipeg, Man.
Cass, Percy, Fredericton, N.B.
Cate, Charles Walter, Sherbrooke, Que.
Chadwick, Arthur, Hamilton, Ont.
Chambers, Sylvester, Truro, N.S.
Chapman, Evan, Sydney, C.B.
Chestnut, C. Fred, Fredericton, N.B.
Chown, George Y., Kingston, Ont.
Christin, Melbourne F., Winnipeg, Man.
Church, David H., Orillia, Ont.
Church, James Oscar, Smiths Falls, Ont.
Churchill, Frederick, Collingwood, Ont.
Churchill, Walter, Yarmouth, N.S.
Clancy, Percy L., Halifax, N.S.
Clark, Alfred H., Windsor, Ont.
Clark, D. K., Woodstock, Ont.
Clark, H. J., Belleville, Ont.
Clark, J. Artemus, Charlottetown, P.E.I.
Clark, Thomas H., Edmonton, Alta.
Clark, Wallace W., Bear River, N.S.
Clark, Willard G., Bear River, N.S.
Clark, William H., Edmonton, Alta.
Clarke, Dr. Judson F., Vancouver, B.C.
Clayton, J., Halifax, N.S.
Cleland, Mrs. (Dr.) Annie, Victoria, B.C.
Clements, Frank de L., Fredericton, N.B.
Clemesha, Theodore, Regina, Sask.
Clow, Fred. W., Brockville, Ont.
Clubb, William, Vancouver, B.C.
Coatsworth, Joseph W., Walkerville, Ont.
Coatsworth, M. B., New Westminster, B.C.
Cole, Capt., Collingwood, Ont.
Cole, George H., Orillia, Ont.
Cole, J. M., Woodstock, Ont.
Coles, James C., Brantford, Ont.
Coll, Charles J., New Glasgow, N.S.
Collier, Herbert W., Vancouver, B.C.
Colling, James, Belleville, Ont.
Collings, John, Charlottetown, P.E.I.
Colquhoun, Arthur H. U., Toronto, Ont.
Coombes, Joseph E., Saskatoon, Sask.
Comeau, Ambrose, Digby, N.S.
Comeau, Joseph, M.P.P., Comeauville, N.S.
Conn, William, St. Thomas, Ont.
Connell, Dr. W. T., Kingston, Ont.
Cook, William, Kingston, Ont.
Cooper, Thomas, Brantford, Ont.
Copp, Harold, Fort William, Ont.
Copping, William, Joliette, Que.
Cornelius, Charles S., Chatham, Ont.
Corning, Howard, Yarmouth, N.S.
Coslett, George A., Fort William, Ont.
Cotter, Richard, Winnipeg, Man.
Coughlin, Dr. John C., Belleville, Ont.
Coulilard, Louis H., Victoriaville, Que.
Coulter, William, Truro, N.S.
Coutts, James, Barrie, Ont.
Cowan, Herbert B., Peterborough, Ont.
Cowan, James, Galt, Ont.
Cowan, John, Oshawa, Ont.
Cox, Fred E., Middleton, N.S.
Crabtree, David, Joliette, Que.
Craig, F. C., Halifax, N.S.
Craig, Inglis, Amherst, N.S.
Craig, Thomas, Quebec, Que.
Craig, William Dixon, Montreal, Que.
Cranston, Robert, Ottawa, Ont.
Crawford, Dr. Mary, Winnipeg, Man.
Creelman, George C., Guelph, Ont.
Cressey, James T., Brandon, Man.
Crocker, John H., Brantford, Ont.
Croucher, James, Brantford, Ont.
Cross, Alfred E., Calgary, Alta.
Crossley, T. Linsey, Montreal, Que.
Crossman, John A., Amherst, N.S.
Crothers, Thomas W., St. Thomas, Ont.
Crowe, Col. John H., Kingston, Ont.
Crowell, Harold S., Yarmouth, N.S.
Crump, Fred., Toronto, Ont.
Cudlip, John B., St. John, N.B.
Cullen, James E., Calgary, Alta.
Culten, Rev. George, Wolfville, N.S.
Cumming, Professor Melville, Halifax, N.S.

Currie, J. W., Goderich, Ont.
Currie, Major, Collingwood, Ont.
Currie, F., Collingwood, Ont.
Currie, John M., Amherst, N.S.
Cutten, Hector, Truro, N.S.

D

Dalaire, O. E., St. Hyacinthe, Que.
Dale, Prof. James A., Montreal, Que.
Dalton, William, Vancouver, B.C.
Daly, Herbert, Toronto, Ont.
Daoust, Joseph, Montreal, Que.
Davey, Fred C., Berlin, Ont.
Davidson, James, Cobourg, Ont.
Davidson, James, Vancouver, B.C.
Davidson, Margaret, Toronto, Ont.
Davidson, T. Charles, Montreal, Que.
Davis, Asa W., Sackville, N.B.
Davis, Leonard H., Sault Ste. Marie, Ont.
Davison, Frank, Bridgewater, N.S.
Davison, James, Guelph, Ont.
Dawson, Herbert D., Port Arthur, Ont.
Dawson, Robert, Bridgewater, N.S.
Dawson, Thomas C., St. Catharines, Ont.
Day, Professor George E., Guelph, Ont.
Deacon, Richard, Prince Albert, Sask.
Deacon, Thomas R., Winnipeg, Man.
Deacon, W. B., Belleville, Ont.
Dean, Professor Henry H., Guelph, Ont.
Dearness, John, London, Ont.
Denholme, Andrew, Chatham, Ont.
Dennis, Mrs., Halifax, N.S.
Dennis, Ernest R., London, Ont.
Derbyshire, Daniel, Brockville, Ont.
Derick, Miss Carrie M., Montreal, Que.
Derrer, Henry, Sault Ste. Marie, Ont.
Desjardins, Rev. Father J. L., Montreal, Que.
Desmond, Miss Mary, Montreal, Que.
Dewar, Alfred A., Charlottetown, P.E.I.
Dewey, William G., Paris, Ont.
DeWolfe, Dr. Henry Todd, Wolfville, N.S.
DeWolff, L. A., Liverpool, N.S.
Dibblee, J. T. Allan, Woodstock, N.B.
Dick, John, Cobourg, Ont.
Dickie, Martin, Truro, N.S.
Dickson, Hugh, Truro, N.S.
Dingman, Mayor, Stratford, Ont.
Dinsmore, Thomas C., Sault Ste. Marie, Ont.
Dion, Hector, Moose Jaw, Sask.
Dixon, Fred D., Nanaimo, B.C.
Dobie, Robert, Peterborough, Ont.
Donkin, W. Frederick, Amherst, N.S.
Dorrell, Henry, Moose Jaw, Sask.
Dowler, W. A., Fort William, Ont.
Downey, Andrew G., Fredericton, N.B.
Downey, Daniel W., Brockville, Ont.
Donald, A. S., Owen Sound, Ont.
Donaldson, John, Kentville, N.S.
Doyle, Father Moses, Antigonish, N.S.
Draper, Patrick M., Ottawa, Ont.
Dreaver, William, Guelph, Ont.
Drennan, Ralph E., Saskatoon, Sask.
Drew, Lauren G., Oshawa, Ont.
Drew, George L., Hamilton, Ont.
Drewry, Edward L., Winnipeg, Man.
Driscoll, William, Kingston, Ont.
Drummond, Hon. Robt., New Glasgow, N.S.
Dryden, Andrew, Galt, Ont.
Dubeau, J. A., Joliette, Que.
Duff, John M., Montreal, Que.
Deegan, Harry B., Peterborough, Ont.
Dumble, David W., Peterborough, Ont.
Dunbar, Alexander, Woodstock, N.B.
Dunham, Miss Mabel, Berlin, Ont.
Dunlop, James, Woodstock, Ont.
Dunnell, Harry, Victoria, B.C.
Dupuis, Professor N. F., Kingston, Ont.
Durkee, Albert A., Yarmouth, N.S.
Dwiley, Prof. Richard John, Montreal, Que.

E

Eakins, A.W., Yarmouth, N.S.
Eastwood, James, New Glasgow, N.S.
Eaton, Ralph E., Kentville, N.S.
Eddie, Charles, Vancouver, B.C.
Edgar, Mrs. Florence Esther, Ottawa, Ont.
Edwards, Clarence B., London, Ont.
Edwards, Prof. W. Muir, Strathcona, Alta.
Egan, David H., Chatham, N.B.
Eldon, Robert H., Toronto, Ont.
Elliott, Robert B., Halifax, N.S.
Ellis, J. F., Toronto, Ont.
Ellis, Owen, Montreal, Que.
Ellis, Prof. William Hodgin, Toronto, Ont.
Ellis, Prof. William S., Kingston, Ont.
Emberley, George E., Ste. Anne de Bellevue, Ont.

Embree, Dr. Luther E., Toronto, Ont.
Emmerson, Hon. Henry R., Moncton, N.B.
Emmerson, Robert B., St. John, N.B.
Emms, Frederick, Fredericton, N.B.
England, Dr. Octavia Grace, Montreal, Que.
Estabrooks, Theodore, St. John, N.B.
Evans, Edward D., St. John, N.B.
Evans, Prof. John, Guelph, Ont.
Evans, Mrs. Robert, Hamilton, Ont.
Evans, Sanford, Winnipeg, Man.
Ewing, Miss Nina A., Toronto, Ont.

F

Fairey, Ernest, Victoria, B.C.
Fairfield, William H., Lethbridge, Alta.
Falconer, Alexander D., Halifax, N.S.
Falconer, Robert A., Toronto, Ont.
Fallon, Father James P., Ottawa, Ont.
Falter, Philip H., Shawinigan Falls, Que.
Fawcett, William B., Sackville, N.B.
Fee, Henrietta, St. Catherine, Ont.
Fellows, John, New Glasgow, N.S.
Ferguson, John, Sackville, N.B.
Ferguson, Miss Kathleen, Vancouver, B.C.
Ferguson, William T., Smiths Falls, Ont.
Fernald, Henry H., Regina, Sask.
Fernis, Harry, Victoria, B.C.
Fernon, B. E., Toronto, Ont.
Field, Frank M., Cobourg, Ont.
Fife, James A., Edmonton, Alta.
Field, Harry, Cobourg, Ont.
Field, J. M., Goderich, Ont.
Fyen, Alfred, Montreal, Que.
Finnie, Dr. John T., Quebec, Que.
Finnie, Frank, Sackville, N.B.
Fisher, John H., Paris, Ont.
Fisher, Miss Kathleen A., Ste. Anne de Bellevue, Que.
Fisher, William S., Sackville, N.B.
Fisher, William S., St. John, N.B.
Fiske, James, Strathcona, Alta.
Fixter, John, Ste. Anne de Bellevue, Que.
Flavelle, J. D., Lindsay, Ont.
Flavelle, William, Lindsay, Ont.
Fleetwood, James H., Lethbridge, Alta.
Fleming, Dennis R., Sydney, C.B.
Fleming, M. McD., Listowel, Ont.
Fleming, Richard, Sydney, C.B.
Fletcher, Robert F., Winnipeg, Man.
Flewwelling, Robert, Hampton, N.B.
Fontaine, Joseph T., Montreal, Que.
Ford, William A., Sault Ste. Marie, Ont.
Fordyce, George, Calgary, Alta.
Foresman, D. H., Bridgewater, N.S.
Forrest, Rev. John, Halifax, N.S.
Forrester, Mrs. Christina, New Westminster, B.C.
Foster, John T., Montreal, Que.
Fowke, Frederick Luther, Oshawa, Ont.
Foy, Ellesworth, Nanaimo, B.C.
Francis, James, Sydney Mines, N.S.
Franz, William C., Sault Ste. Marie, Ont.
Fraser, Donald, Fredericton, N.B.
Fraser, Graham, New Glasgow, N.S.
Fraser, Miss Jessie, Medicine Hat Alta.
Fraser, Joseph Dix, Port Arthur, Ont.
Fraser, Thomas, New Glasgow, N.S.
Frean, Edward J., Calgary, Alta.
Freeman, Samuel, Amherst, N.S.
Frink, James H., St. John, N.B.
Frost, Francis T., Smiths Falls, Ont.
Frost, Harry L., Hamilton, Ont.
Frost, William H., Smiths Falls, Ont.
Fryer, Mark, Collingwood, Ont.
Fulcher, Edmund, Brandon, Man.
Fuller, Fred L., Truro, N.S.
Fwize, John, Sault Ste. Marie, Ont.

G

Gaebel, Charles, Edmonton, Alta.
Gagner, Alfred, Moncton, N.B.
Gagnon, Father Alphonse, Sherbrooke, Que.
Gagnon, Miss Mariette, Montreal, Que.
Gagnon, M. T., Montreal, Que.
Galbraith, Professor John, Toronto, Ont.
Galbraith, Dr. Walter, Lethbridge, Alta.
Galbraith, Dean, Toronto, Ont.
Gammage, William W., London, Ont.
Gammell, Isaac, Montreal, Que.
Garbutt, Fred K. G., Calgary, Alta.
Garden, James H., Calgary, Alta.
Gardner, Robert, Montreal, Que.
Gardham, John T., Montreal, Que.

Gardiner, Herbert, Brantford, Ont.
Gardner, Henry, St. Thomas, Ont.
Garratt, Elwood, Winnipeg, Man.
Gartshore, Colonel, London, Ont.
Gastonguay, J. A., Quebec, Que.
Gaudet, Colonel F. M., Quebec, Que.
Gauthier, Thomas, Montreal, Que.
Gauthier, Rev. Dr. Peter, Summerside, P.E.I.
Gavin, Fred R., Windsor, Ont.
Geggie, Fred, Hampton, N.B.
Gelinas, Charles P., Three Rivers, Que.
Gegault, J. A., Quebec, Que.
Gegnac, Joseph H., Quebec, Que.
Gernaundt, Fred J., Hamilton, Ont.
Gibson, John W., Ottawa, Ont.
Gibson, John, Oshawa, Ont.
Gill, Prof. L. W., Kingston, Ont.
Gill, John M., Brockville, Ont.
Gillespie, G. A., Peterborough, Ont.
Gillett, Lorenzo D., St. Thomas, Ont.
Gilman, John C., Fredericton, N.B.
Gilly, Mrs. Adela, New Westminster, B.C.
Giroux, Reguis, Cornwall, Ont.
Giroux, David, Montreal, Que.
Glydon, Frank, Summerside, P.E.I.
Godin, Hector L., Three Rivers, Que.
Goffatt, W., Orillia, Ont.
Goldec, Alec, Galt, Ont.
Goodwin, Dr. W. L., Kingston, Ont.
Gordon, Charles B., Montreal, Que.
Gordon, Principal, D. M., Kingston, Ont.
Gordon, Rev. John, Winnipeg, Man.
Gordon, John S., Hamilton, Ont.
Gordon, John S., Victoria, B.C.
Gordon, Major John, St. John, N.B.
Gould, Charles, London, Ont.
Gourlay, Robert S., Toronto, Ont.
Gouthrow, John, North Sydney, N.S.
Govang, Marshall, Moncton, N.B.
Graham, Osborne, Winnipeg, Man.
Graham, S., Glace Bay, N S
Graham, Charles W. R., London, Ont.
Grant, Melford, Yarmouth, N.S.
Grant, Janet, Toronto, Ont.
Gratten, Gifford D., Sault Ste. Marie, Ont.
Gray, Frank W., Glace Bay, N.S.
Grayson, William, Moosejaw, Sask.
Green, Leslie A., Sault Ste. Marie, Ont.
Green, Fred W., Moosejaw, Sask.
Greening, Harold B., Hamilton, Ont.
Greenwood, W. K., Orillia, Ont.
Gregory, Henry, Sydney, C. B.
Greig, Professor Alexander, Saskatoon, Sask.
Grenier, Alexander, Quebec, Que.
Grey, Morgan, Cornwall, Ont.
Griffiths, Charles, Cornwall, Ont.
Griggs, Stephen A., Windsor, Ont.
Grimmer, Allan K., Medicine Hat, Alta.
Griswold, Harry J., Montreal, Que.
Groat, George, Chatham, Ont.
Gross, Daniel, Jr., Berlin, Ont.
Guilbault, Alexander G., Joliette, Que.
Gunn, Sydney, C. B.
Guthrie, Hugh, M.P., Guelph, Ont.

H

Hacking, J. A., Listowel, Ont.
Hagan, James, Amherst, N.S.
Hagan, Miss, Fernie, B.C.
Hahn, Charles, Berlin, Ont.
Haight, Henry, Sherbrooke, Que.
Hale, Charles H., Orillia, Ont.
Hale, Thomas, New Glasgow, N.S.
Hales, Benjamin, Portage la Prairie, Man.
Halett, William John, Cornwall, Ont.
Haley, Francis Raymond, Wolfville, N.S.
Haley, Patrick, Sydney, C.B.
Hall, Dr. James B., Truro, N.S.
Hall, William Herbert, Oshawa, Ont.
Hallisey, John T., Truro, N.S.
Hamer, Robt., Port Arthur, Ont.
Hamilton, Dr. David Wiley, Fredericton, N.B.
Hamilton, R. Morton, Galt, Ont.
Hamilton, William J., Fort William, Ont.
Hamilton, Joan (Miss) Regina, Sask.
Hamilton, William A., Lethbridge, Alta.
Hamilton, Dr. Thomas G., Winnipeg, Man.
Hamwoos, Robert L., Toronto, Ont.
Hannaford, Frank, Hamilton, Ont.
Hannah, John, St. John, N.B.
Hannah, Mayor, Windsor, Ont.
Harding, Edwin, Toronto, Ont.
Hardee, William D. L., Lethbridge, Alta.
Harding, Charles J., Winnipeg, Man.

Harcourt, Professor Robert, Guelph, Ont.
Harcourt, George, Edmonton, Alta.
Harkness, T. J., Owen Sound, Ont.
Harris, Edward, Vernon, B.C.
Harris, F. W., Owen Sound, Ont.
Harris, Samuel, Toronto, Ont.
Harrison, Frederick W., Owen Sound, Ont.
Harrison, Dr. Frank, St. Anne de Bellevue, Que.
Harrison, George, Moosejaw, Sask.
Harrower, John, Hamilton, Ont.
Hart, Frank C., Galt, Ont.
Hartley, Gilbert, Fort William, Ont.
Harwood, Joseph, Vernon, B.C.
Hastey, John, Windsor, Ont.
Haskin, Arthur, Brantford, Ont.
Haszard, Horace, Charlottetown, P.E.I.
Haszard, Premier, Charlottetown, P.E.I.
Hatch, George M., Lethbridge, Alta.
Hatch, Alderman, Geo. M. Lethbridge, Alta.
Hatheway, Samuel B., Fredericton, N.B.
Hatheway, W. Frank, St. John, N.B.
Haverstock, Ernest, Sydney Mines, N.S.
Haviland, Henry B., Chatham, N.B.
Hawke, John T., Moncton, N.B.
Hayden, John D., Cobourg, Ont.
Hayes, Hedley V., St. John, N.B.
Hay, Dr. George W., St. John, N.B.
Hayhurst, Fred, Galt, Ont.
Haynes, Arthur W., Prince Albert, Sask.
Head, William Henry, Brandon, Man.
Healy, D., Halifax, N.S.
Heard, William, St. Thomas, Ont.
Heatherington, Daniel, St. Catharines, Ont.
Heaton, John, Lethbridge, Alta.
Heggie, George, Vernon, B.C.
Henderson, Ernest, Windsor, Ont.
Henderson, Rose Wills, Montreal, Que.
Henderson, Dr. James Alex., Moncton, N.B.
Hendry, A. W., Liverpool, N.S.
Hergurger, August, Victoria, B.C.
Herchner, Sherwood, Fernie, B.C.
Herdt, Prof. Lewie, Montreal, Que.
Hewson, Harvey L., Amherst, N.S.
Hewton, John, Kingston, Ont.
Hickman, Archie, Ottawa, Ont.
Higson, John, New Glasgow, N.S.
Hilarion, Brother, Three Rivers, Que.
Hill, Charles M., Ste. Hyacinthe, Que.
Hobbs, Frank, Charlottetown, P.E.I.
Hodgins, Frank, Berlin, Ont.
Hogg, Fred., Lethbridge, Alta.
Holland, R. Victor, Shawinigan Falls, Que.
Holliday, Minnie (Miss), Winnipeg, Man.
Holmes, Mayor, Prince Albert, Sask.
Honeyman, John R. C., Regina, Sask.
Hood, William, Winnipeg, Man.
Hopkins, Mayor, Saskatoon, Sask.
Horner, Albinus W., Yarmouth, N.S.
Horton, George A., St. John, N.B.
Horton, Norton S., Yarmouth, N.S.
Houston, Alec., Lethbridge, Alta.
Howard, James, Vancouver, B.C.
Howe, John D., St. John, N.B.
Howell, George A., Toronto, Ont.
Howell, William, Port Arthur, Ont.
Howell, Frederick J., Hamilton, Ont.
Howell, George, Calgary, Alta.
Howlett, James, Charlottetown, P.E.I.
Hubbard, W. Woodbridge, Fredericton, N.B.
Hudson, Thomas C., Joliette, Que.
Huestis, Mrs. Archibald M., Toronto, Ont.
Hughes, James, Toronto, Ont.
Hugill, Archibald H., Sault Ste. Marie, Ont.
Hunt, Ambrose C., Regina, Sask.
Hunter, Sarah, Toronto, Ont.
Hunter, Andrew F., Barrie, Ont.
Hunter, (Miss) Georgina, Montreal, Que.
Hunter, (Miss) Ida M., Toronto, Ont.
Hurlbatt, (Miss) Ethel, Montreal, Que.
Hurley, James J., Brantford, Ont.
Husband, Almeron, Brockville, Ont.
Husband, H. W., Vernon, B.C.
Hutchins, Elisha F., Winnipeg, Man.
Hutcherson, Elton B., Regina, Sask.
Hutton, Arthur E., Owen Sound, Ont.
Hyatt, Frederick, St. John, N.B.

I

Inman, Herbert, Summerside, P.E.I.

J

Jackson, Andrew, Amherst, N.S.
Jacob, John D., London, Ont.
Jacques, Euclid, Windsor, Ont.

James, Charles C., Toronto, Ont.
James, Nathaniel C., London, Ont.
James, William H. Trewartha, Victoria, B.C.
Jameson, W. A., Victoria, B.C.
Jamieson, Clarence, M.P., Digby, N.S.
Jamieson, Mayor, Calgary, Alta.
Jardine, James, Collingwood, Ont.
Jardine, John, Victoria, B.C.
Jeffrey, William, Ottawa, Ont.
Jenkin, William, Hamilton, Ont.
Jenkins, Edward, Toronto, Ont.
Jenkins, Mrs. Margaret, Victoria, B.C.
Jesson, N. B., Owen Sound, Ont.
Johnson, Burton, Truro, N.S.
Johnson, Fred H., Bridgetown, N.S.
Johnston, John, Sydney Mines, N.S.
Johnston, John W., Smiths Falls, Ont.
Johnston, Lacey, Montreal, Que.
Johnstone, Andrew L., Winnipeg, Man.
Jones, Albert E., Windsor, N.B.
Jones, Albert E., Woodstock, N.B.
Jones, Arnold B., Saskatoon, Sask.
Jones, Cecil C., Fredericton, N.B.
Jones, Charles, St. John, N.B.
Jones, Charles H. L., Sault Ste. Marie, Ont.
Jones, Thos. R., Middleton, N.S.
Jordan, Arthur, Nanaimo, B.C.
Jordan, George A., Lindsay, Ont.
Julien, Mr., Fernie, B.C.
Juniper, Annie B., Winnipeg, Man.

K

Kaine, John, Sault Ste. Marie, Ont.
Keane, John D., Antigonish, N.S.
Keay, Prof. Herbert O., Montreal, Que.
Kelly, Fenwick L., North Sydney, N.S.
Kelly, Nicholas, Ottawa, Ont.
Kelly, William, Kingston, Ont.
Kelly, W. M., Yarmouth, N.S.
Kennedy, Dawsley, Owen Sound, Ont.
Kennedy, Mathew, Owen Sound, Ont.
Kennedy, William C., Windsor, Ont.
Kenny, Thomas F., Galt, Ont.
Kent, Jas., Galt, Ont.
Ker, David R., Victoria, B.C.
Kerr, Henry O., Windsor, Ont.
Kerr, John A., Belleville, Ont.
Kerr, Samuel, St. John, N.B.
Kidner, Thos., Fredericton, N.B.
Kidston, John, Vernon, B.C.
Killam, Professor Lawrence, Sackville, N.B.
Kilner, Ernest, Brantford, Ont.
King, Frederick W., London, Ont.
Kingstone, Arthur C., St. Catharines, Ont.
Kinner, Henry, Peterborough, Ont.
Kinney, James A., Saskatoon, Sask.
Kirk, G. A., Victoria, B.C.
Kirkconnell, Thomas A., Lindsay, Ont.
Kirkland, William S., Toronto, Ont.
Kirkpatrick, Prof. A. K., Kingston, Ont.
Kirkpatrick, Prof .S. F., Kingston, Ont.
Klinck, Prof. Leonard S., Ste. Anne de Bellevue, Que.
Kneale, J. A., Orillia, Ont.
Knight, Archibald P., Kingston, Ont.
Knox, John D., Orillia, Ont.
Kyle, John, Vancouver, B.C.

L

LaBruére, P. Boucher de, Quebec, Que.
Ladd, Walker P., Windsor, Ont.
Lafontaine, Justice Eugene, Montreal, Que.
Lague, Colonel Thomas, Fredericton, N.B.
Laird, Professor Annie, Toronto, Ont.
Lajoie, Mme. Marie Gevin, Montreal, Que.
Lake, William F., Sydney, C.B.
Lalor, John M., Toronto, Ont.
Lamont, Stewart, Chatham, Ont.
Landcaster, , Fernie, B.C.
Landon, William R., Chatham, Ont.
Lane, Mr., Goderich, Ont.
Lane, John, St. Thomas, Ont.
Lang, George, Berlin, Ont.
Lang, George M., Calgary, Alta.
Lang, John T., Hamilton, Ont.
Langlois, Godfrey, Quebec, Que.
Lanyon, William T., St. John, N.B.
Lanthier, Raoul, Montreal, Que.
Lapierre, Adelard, Antigonish, N.S.
Lariviere, Frederick C., Montreal, Que.
Later, Thomas, Sault Ste. Marie, Ont.
Laveray, Edward, Brantford, Ont.
Laway, Charles, Woodstock, Ont.
Lawe, Mrs. F. C., Fernie, B.C.
Lawrence, Henry D., Sherbrooke, Que.
Lawry, J. R., Fernie, B.C.
Lay, Everett J., Amherst, N.S.
Lea, Walter, Summerside, P.E.I.
Leake, Albert H., Toronto, Ont.
Lean, Mary, Toronto, Ont.

LeCrumb, Erie, Strathcona, Alta.
Ledain, Mrs. Nellie, Montreal, Que.
Lee, Mayor, New Westminster, B.C.
Lee, S. Carson, Portage la Prairie, Man.
Lees, George H., Hamilton, Ont.
Lehmann, Dr. Adolph, Strathcona, Alta.
Leicester, Charles, Nanaimo, B.C.
Lennox, Haughton, Barrie, Ont.
Leonard, Frank E., London, Ont.
Levan, T. M., Woodstock, Ont.
LeVatte, H. G., Sydney, C.B.
Lewis, George, Kingston, Ont.
Liltart, Father, Brandon, Man.
Lincoln, Dr. William, Calgary, Alta.
Lister, John George, Vancouver, B.C.
Livesey, Edward, Edmonton, Alta.
Lochhead, Prof. William, Ste. Anne de Bellevue, Que.
Lodge, Matthew, Moncton, N.B.
Logan, Fred M., Vancouver, B.C.
Loggie, William S., Chatham, N.B.
Lomax, Mrs. Marie, Montreal, Que.
Loney, Richard, Moosejaw, Sask.
Landell, William, Calgary, Alta.
Lawe, Charles, Collingwood, Ont.
Lucas, Frank E., Sydney, C.B.
Lucas, William L., Hamilton, Ont.
Lumby, John William, Fort William, Ont.
Lusby, L. Blair, New Westminster, B.C.
Lyall, Peter, Montreal, Que.
Lyle, (Mrs.) Dr. Elisabeth, Hamilton, Ont.
Lyman, Mrs. Anna, Montreal, Que.
Lynde, Dr. Carleton J., Ste. Anne de Bellevue, Que.
Lynn, Joseph F., Calgary, Alta.

M

Macheras, Prof. Antoine, Montreal, Que.
Mackie, J. Cameron, Sydney, C.B.
Mackley, John C., Sydney, C.B.
Macoun, Professor John, Bridgewater, N.S.
Mader, Charles W., M.P.P., Lunenburg, N.S.
Magie, Louis, Peterborough, Ont.
Maharg, Clark S., Calgary, Alta.
Mailman, John S., New Glasgow, N.S.
Mairn, James W., Truro, N.S.
Malcolm, James, Winnipeg, Man.
Mammery, Daniel M., Sherbrooke, Que.
Mansell, Isaac J., Brockville, Ont.
Mantle, Albert F., Regina, Sask.
Marceau, Ernest, Montreal, Que.
Marchbanks, Percy, Summerside, P.E.I.
Marple, Neil, St, Thomas, Ont.
Marsh, George H., Victoria, B.C.
Marsh, L. W., Belleville, Ont.
Marshall, Edgar K., Portage la Prairie, Man.
Marshall, Fred, Strathcona, Alta.
Martell, Rev. George, Windsor, N.S.
Martin, Miss Catherine, St. John, N.S.
Martin, John, Paris, Ont.
Marven, Dr. Bliss Adam, Chatham, N.B.
Mason, Frank Lawrence, Oshawa, Ont.
Mason, James J., Stratford, Ont.
Masters, Captain James, Moncton, N.B.
Matheson, Dr. James R., Prince Albert, Sask.
Maxwell, George H., St. John, N.B.
May, George, Ottawa, Ont.
Mayburry, C. A., Stratford, Ont.
Meads, Arthur, Lethbridge, Alta.
Megan, R. J., Goderich, Ont.
Mehon, George F., Woodstock, Ont.
Melanson, Simon, Moncton, N.B.
Meldrum, E., Stratford, Ont.
Melrose, William, Toronto, Ont.
Meneelsy, Andrew, Medicine Hat, Alta.
Mercer, J. S., Woodstock, Ont.
Merrill, Jay C., Moncton, N.B.
Mersercau, Chalmers J., Chatham, N.B.
Merton, Luther K., Oshawa, Ont.
Messenger, Ralph, Bridgetown, N.S.
Metcalfe, Caleb, Ottawa, Ont.
Michand, Benjamin, Quebec, Que.
Michel, Father, Fernie, B.C.
Michler, Jacob, Berlin, Ont.
Middleton, Alex., Medicine Hat, Alta.
Millar, R. A., Lindsay, Ont.
Miller, Andrew, Toronto, Ont.
Miller, Arthur, Calgary, Alta.
Miller, Guilford, Middleton, N.S.
Miller, James Collins, Calgary, Alta.
Miller, Professor Robert B., Fredericton, N.B.
Miller, Dr. Samuel, Middleton, N.S.
Miller, William W., Portage la Prairie, Man.

Mills, G. K., Collingwood, Ont.
Milner, William C., Amherst, N.S.
Mitchell, Archibald, Saskatoon, Sask.
Mitchell, David T. N., Collingwood, Ont.
Mitchell, James, Goderich, Ont.
Mitchell, Moses, Fredericton, N.B.
Mitchell, Robert S., Winnipeg, Man.
Moffatt, Artemas, Charlottetown, P.E.I.
Moffatt, John, Glace Bay, N.S.
Moffatt, Thomas L., Toronto, Ont.
Maloney, Paul J., Cornwall, Ont.
Monet, Hector, Ste. Hyacinthe, Que.
Monk, Martin, New Westminster, B.C.
Monroe, William H., Sault Ste. Marie, Ont.
Monteith, Hon. Nelson, Stratford,Ont.
Mooney, John, Regina, Sask.
Moore, — Peterborough, Ont.
Moore, Clarence L., Truro, N.S.
Moore, William H., Fredericton, N.B.
Morley, James W., Winnipeg, Man.
Morley, W. W., Listowel, Ont.
Morrell, Euphemia, Regina, Sask.
Morris, John L., Shawinigan Falls,Que.
Morris, Michael, Chatham, N.B.
Morrow, W. G., Peterborough, Ont.
Morse, Leander, Digby, N.S.
Morse, Miss Nellie, Middleton, N.S.
Motherwell, Hon. W. R., Regina, Sask.
Mowat, Alexander, Peterborough,Ont.
Muggah, John, Glace Bay, N.S.
Muir, Mrs. Ada, Winnipeg, Man.
Mulhall, Duncan C., Liverpool, N.S.
Munro, Duncan, M.P.P., Woodstock. N.B.
Murphy, Mrs. Emily, Edmonton, Alta.
Murphy, James, Fort William, Ont.
Murphy, Father William J., Ottawa, Ont.
Murray, Allan, Brockville, Ont.
Murray, James, Brandon, Man.
Murray, T., Owen Sound, Ont.
Murray, Professor Walter, Saskatoon, Sask.
MacClement, Prof. W. T., Kingston, Ont.
MacDonald, Alexander, Glace Bay, N.S.
MacDonald, Miss Maude, Winnipeg, Man.
McAllister, John, Moose Jaw, Sask.
McArd, P., Jr., Regina, Sask.
McArdle, Henry, Prince Albert, Sask.
McBean, John W., Toronto, Ont.
MacBerth, J. G., Woodstock, Ont.
McCaig, Archibald, M.P., Chatham, Ont.
McCaig, James, Edmonton, Alta.
McCall, Dr. Alex., Collingwood, Ont.
McCallum, James W., Amherst, N.S.
McCallum, John W., Stratford, Ont.
McCallum, John S., Smith's Falls, Ont.
McCarthy, Professor Joseph, Windsor, N.S.
McCarthy, Miss, Goderich, Ont.
Macauley, Mrs. Mary, Vancouver,B.C.
McClary Mfg. Co'y., Supt. of, London, Ont.
McColl, Duncan P., Regina, Sask.
McColl, John B., Cobourg, Ont.
McCormack, George A., Charlottetown. P.E.I.
McCosh, Thomas, Paris, Ont.
McCrae, Miss Alice, Truro, N.S.
McCready, Professor Samuel, Guelph, Ont.
McCully, Silas, Sussex, N.B.
McCurdy, A. W., Victoria, B.C.
McCutcheon, Fred W. C., London,Ont.
McDivimid, Archibald, Brandon, Man.
McDonald, — Fernie, B.C.
McDonald, Angus J., Antigonish, N.S.
McDonald, Charles, St. John, N.B.
McDonald, E. G., Listowel, Ont.
McDonald, Fred, Amherst, N.S.
McDonald, James Edward, Cornwall, Ont.
McDonald, James H., Strathcona, Alta.
McDonald, John, Smith's Falls, Ont.
McDonald, John R., Stratford, Ont.
McDonald, Peter W., Sydney, C.B.
McDougall, Alexander, Ottawa, Ont.
McDougall, Cyrus W., Sussex, N.B.
McDougall, Daniel, Glace Bay, N.S.
McDougall, Daniel H., Glace Bay,N.S.
McDougall, Duncan, Brandon, Man.
McDowell, George C., Truro, N.S.
McEachern, Alexander, Glace Bay, N.S.
McEhern, Maxwell, Winnipeg, Man.
McEwen, Mrs. Jessie, Brandon, Man.
McEwen, John, Smith's Falls, Ont.
McFarlane, Andrew, Peterborough, Ont.
McFarlane, Geo. W., Paris, Ont.
McFadyen, Alexander J., Summerside, P.E.I.
McGahey, David, Fredericton, N.B.

McGaw, Samuel A,. Winnipeg, Man.
McGeachy, Edwin C., Chatham, Ont.
McGeorge, Edmonton, Alta.
McGill, George B., Middleton, N.S.
McGirr, James, St. John, N.B.
McGorman, Ernest, Windsor, Ont.
McGorman, William, St. John, N.B.
McGrath, Edward, Winnipeg, Man.
McGrath, John J., Saskatoon, Sask.
McGray, A. A., Yarmouth, N.S.
McGregor, Andrew, Edmonton, Alta.
McGregor, Angus, Sault Ste. Marie, Ont.
McGregor, Gordon, Walkerville, Ont.
McGregor, James C., New Glasgow, N.S.
McGregor, Robert M., Pictou, N.S.
McGregor, Senator, Pictou, N.S.
McGuire, Thomas Horace, Prince Albert, Sask.
McGuire, Thomas M., Portage la Prairie, Man.
McIntosh, Professor D. C., Liverpool, N.S.
McIntosh, Henry H., Lunenburg, N.S.
McIntyre, Alexander, Sault Ste. Marie, Ont.
McIntyre, Daniel, Winnipeg, Man.
McIntyre, Rev. Father, Antigonish, N.S.
McIntyre, Dr. William A., Winnipeg, Man.
MacRay, Alexander, Halifax, N.S.
MacKay, Hon. A. G., Owen Sound, Ont.
MacKay, Dr. A. H., Halifax, N.S.
McKay, J. W., Kentville, N.S.
McKee, George A., Strathcona, Alta.
McKee, George M., Orillia, Ont.
McKee, Dr. Samuel J., Brandon, Man.
McKellar, Hugh, Moose Jaw, Sask.
MacKelvie, John A., Vernon, B.C.
MacKenzie, Arnold, Bridgetown, N.S.
MacKenzie, D. A., Lindsay, Ont.
MacKenzie, George W., Sydney Mines, N.S.
MacKenzie, Hugh, Truro, N.S.
MacKenzie, Hugh D., M.P., North Sydney, N.S.
MacKenzie, Norman, Glace Bay, N.S.
McKenzie, Cecil, Collingwood, Ont.
McKenzie, Duncan S., Edmonton, Alta.
McKenzie, Hugh D., Moncton, N.B.
McKenzie, William B., C.E., Moncton, N.B.
McKenzie, William L., Lethbridge, Alta.
McKerricher, Daniel A., Lethbridge, Alta.
McKim, Chester A., Edmonton, Alta.
McKinney, Robert W., St. John, N.B.
McKinnon, Colin S., Victoria, B.C.
McKinnon, James, Cobourg, Ont.
MacKissock, Peter, Winnipeg, Man.
McLaghlin, William, Owen Sound, Ont.
MacLaren, William C., Brockville, Ont.
McLaren, Miss Maude, Toronto, Ont.
McLarty, Charles A., Paris, Ont.
McLaughlin, Robert, Oshawa, Ont.
MacLean, Alfred E., Summerside, P.E.I.
McLean, Allan, London, Ont.
McLean, Allan E., Cornwall, Ont.
McLean, Frederick W., St. Catharines, Ont.
McLean, James, Fernie, B.C.
McLean, James, Amherst, N.S.
McLean, James R., Sussex, N.B.
McLean, Murdoch, Sault Ste. Marie, Ont.
McLean, William M., St. John, N.B.
McLellan, Mrs. Fanny, St. John, N.B. Ont.
McLellan, John W., Chatham, N.B.
McLellan, Principal Robert, Pictou, N.S.
McLennan, Professor John C., Toronto,
MacLeod, Thomas R., Bridgewater, N.S.
McLeod, Prof. Clement H., Montreal, P.Q.
McLeod, Duncan C., Charlottetown, P.E.I.
McLeod, John D., Pictou, N.S.
McLeod, John T., New Glasgow, N.S.
McLuillan, Henry J., Toronto, Ont.
McMahon, Robert, Vancouver, B.C.
McMaster, William, Montreal, P.Q.
McMaugh, Arthur W., St. Catharines, Ont.
McMillan, Charles, Sydney, C.B.
McMillan, Edgar Roy, New Westster, B.C.
McMillan, Thomas, Goderich, Ont.
McMillan, W. J., Listowel, Ont.
McMullen, C. H., Belleville, Ont.
McNachton, Neil F., Cobourg, Ont.

McNair, Andrew, Charlottetown, P.E.I.
McNamara, Valentine, Sault Ste. Marie, Ont.
McNaughton, Mrs. Marie, Vancouver, B.C.
McNault, Frank H., Woodstock, N.B.
MacNeill, A. T., Woodstock, Ont.
McPherson, Dr. Hugh, Antigonish, N.S.
McPherson, Rev. Dr. Antigonish, N.S.
McRae, Dr. Archibald, Calgary, Alta.
McTamney, Bessie, Toronto, Ont.
McVety, James H., Vancouver, B.C.

N

Naismith, Peter L., Lethbridge, Alta.
Neate, John L., Victoria, B.C.
Neill, Norman G., Port Arthur, Ont.
Nelson, C. W., Halifax, N.S.
Nelson, William, New Westminster, B.C.
Nesbitt, E. W., M.P., Woodstock, Ont.
Nichol, Thos. G., Lunenburg, N.S.
Nichols, Arthur L., Fredericton, N.B.
Nicholson, Nathaniel, Victoria, B.C.
Nickerson, M. H., M.P.P., Liverpool, N.S
Nicol, Miss Verna, Toronto, Ont.
Nicol, Prof. Wm., Kingston, Ont.
Northrop, Samuel, Vancouver, B.C.
Norman, Louis Phillipe, Three Rivers, Que
Normand, Audet, Victoriaville, Que.
Nourse, Charles, Lethbridge, Alta.

O

Obermeyer, Philip, Hamilton, Ont.
O'Brien, William, Windsor, N.S.
Ogle, William, Cornwall, Ont.
O'Hara, Marshall, Sault Ste. Marie, Ont.
Oliver, Andrew J., Galt, Ont.
Oliver, James, Ottawa, Ont.
Oliver, Robert J., Smiths Falls, Ont.
Ollipius, Brother, Three Rivers, Que.
O'Neil, John, Jr., Fredericton, N.B.
Osborne, William J., Fredericton, N.B.
Osler, Edward Henry, Cobourg, Ont.
Osmond, John, Brockville, Ont.
Oulton, George, Moncton, N.B.
Overpack, Warren, Medicine Hat Alta

P

Palmer, Charles K., Fredericton, N.B.
Palmer, John F., Yarmouth, N.S.
Pamplin, William J., Calgary, Alta.
Paradis, Jobson, Montreal, Que.
Parisien, William, Cornwall, Ont.
Parker, Burton L., Sydney, C.B.
Parker, Samuel Clipman, Berwick, N.S.
Parker, William, Guelph, Ont.
Parkhill, John H., Winnipeg, Man.
Parmelee, Dr. George W., Quebec, Que.
Parsons, Albert, M.P.P., Windsor, N.S.
Paterson, Albert M., Brockville, Ont.
Patterson, Robert, Stratford, Ont.
Patton, Peter, Collingwood, Ont.
Paul, Edward B., Victoria, B.C.
Payan, Paul F., St. Hyacinthe, Que.
Payne, Robert A., Guelph, Ont.
Peck, John, Vancouver, B.C.
Pedlar, , Fernie, B.C.
Pegg, John B., Fort William, Ont.
Peltier, Joseph Alfred, Three Rivers, Que.
Pelton, Judge, Yarmouth, N.S.
Penhill, Richard A., St .Thomas, Ont.
Pepin, Edward, Quebec, Que.
Perkins, Henry F., Prince Albert, Sask.
Perrault, Joseph N., Montreal, Que.
Perrier, Philip, Montreal, Que.
Perrett, Thomas E., Regina, Sask.
Perrott, Frank, Victoria, B.C.
Peters, Thomas A., Hampton, N.B.
Peterson, Dr. William, Montreal, Que.
Phillips, Miss Mary, Montreal, Que.
Phillips, William C., Toronto, Ont.
Picard, Joseph, Quebec, Que.
Picher, Eugene, Quebec, Que.
Pickard, Charles, Sackville, N.B.
Pickles, Garry, Brantford, Ont.
Pickles, Sugden, Stratford, Ont.
Pickup, Samuel W., M.P., Granville Ferry, N.S.
Pigott, Dryden, J.P., Chatham, Ont.
Pilkington, George, Calgary, Alta.
Plante, Albert E., Mayor, Nanaimo, B.C.
Plante, Arthur, K.C., Quebec, Que.
Plewes, John, Chatham, Ont.
Poivert, Prof. Jules, Montreal, Que.
Pollard, John, Strathcona, Alta.
Ponton, Col. W. L., Belleville, Ont.
Pook, Charles, Hamilton, Ont.
Porteous, Robert, Berlin, Ont.

Porter, James, Vancouver, B.C.
Porter, Prof. John D., Montreal, Que.
Pouliot, W., Joliette, Que.
Powell, Miss Anta, Toronto, Ont.
Praught, Peter, North Sydney, N.S.
Preston, Thomas H., Brantford, Ont.
Prevey, Warren, Strathcona, Alta.
Price, Joseph S., Amherst, N.S.
Price, Robert N., St. Thomas, Ont.
Prince, Dr. Edward E., Ottawa.
Pritchard, James, Chatham, Ont.
Pritchard, Miss Francis, Owen Sound, Ont.
Provost, Euclid, Montreal, Que.
Putman, Dr. John H., Ottawa, Ont.
Putnam, Charles, Medicine Hat, Alta.
Puttee, Arthur W., Winnipeg, Man.

Q

Quinlan, Daniel, Barrie, Ont.
Quintal, Brother, Three Rivers, Que.

R

Race, Wilfrid B., Sault Ste. Marie, Ont.
Radcliffe, Samuel J., London, Ont.
Radford, Mrs. Jane, Montreal, Que.
Rae, James, Medicine Hat, Alta.
Ranel, William, Regina, Sask.
Rankin, Anthony, Kingston, Ont.
Ranson, George, Woodstock, N.B.
Ray, Robert M., Hamilton, Ont.
Raymond, Arthur E., Woodstock, N.B.
Raymond, George, St. John, N.B.
Read, Mrs. Annie, Montreal, Que.
Read, Rev. George L., Sherbrooke, Que.
Read, Capt. Joseph, Summerside, P.E.I.
Read, Russell H., Regina, Sask.
Reason, Dr. Henry T., London, Ont.
Redding, Andrew Larison, Cobourg, Ont.
Redditt, Thomas H., M.A., Barrie, Ont.
Redmond, Miss Annie, Halifax, N.S.
Reeve, Harry, Goderich, Ont.
Reid, John A., Fredericton, N.B.
Reid, John T., Vernon, B.C.
Reid, T. A., Owen Sound, Ont.
Renaud, Joseph A., Joliette, Que.
Rhodes, Leland, Amherst, N.S.
Ricardo, W. Crawley, Vernon, B.C.
Rice, Harry E., Sydney, C.B.
Richard, James, Toronto, Ont.
Richards, Hon. John, Charlottetown, P.E.I.
Richardson, Dr. Alex. W., Kingston, Ont.
Richardson, William L., Toronto, Ont.
Rigg, Richard A., Winnipeg, Man.
Riley, Albert, Moncton, N.B.
Ring, Philip, Halifax, N.S.
Ripley, James W., Hamilton, Ont.
Ritchie, John, Quebec, Que.
Ritchie, Robert, Strathcona, Alta.
Robb, Andrew W., St. John, N.B.
Robb, David W., Amherst, N.S.
Robb, Frank, Galt, Ont.
Roberge, Elzear, Victoriaville, Que.
Roberts, Albert, St. Thomas, Ont.
Roberts, John W., St. Thomas, Ont.
Robertson, Florence, Hampton, N.B.
Robertson, Herbert J., Barrie, Ont.
Robertson, Hugh, Peterborough, Ont.
Robertson, Robert A., Hamilton, Ont.
Robertson, Dr. Samuel, Charlottetown, P.E.I.
Robertson, William, Toronto, Ont.
Robinson, Dr. Alexander, Victoria, B.C.
Robinson, Hon. Clifford W., Moncton, N.B.
Robinson, Dr. George E., Vancouver, B.C.
Robinson, M. O., Fort William, Ont.
Rodda, Rothwell, London, Ont.
Roden, Thomas, Toronto, Ont.
Rogers, Charles F., Woodstock, N.B.
Rogers, David W., Kingston, Ont.
Rogers, Janson, Woodstock, N.B.
Rogers, Walter T., Brockville, Ont.
Roland, Charles F., Winnipeg, Man.
Rollo, Walter, Hamilton, Ont.
Rosborough, Jas., Halifax, N.S.
Rose, Robert C., Smith's Falls, Ont.
Roseborough, Prof. Thos., Reeve, Toronto, Ont.
Ross, Alex., Calgary, Alta.
Ross, John T., Edmonton, Alta.
Ross, John W. Le B., Sault Ste. Marie, Ont.
Ross, Senator, Halifax, N.S.
Ross, Theodore, Charlottetown, P.E.I.
Ross, William A., Chatham, Ont.
Ross, William J., Fort William, Ont.
Ruddy, Joseph, Bradford, Ont.
Ruse, William O., London, Ont.
Russell, James Alex., Windsor, N.S.
Russell, Samuel, Belleville, Ont.

Rust, C. H., Toronto, Ont.
Rutherford, Dr. Alex. C., Strathcona, Alta.
Rutherford, Dr. William, Saskatoon, Sask.
Ryan, Miss Florence, Prince Albert, Sask.
Ryan, Robert, Three Rivers, Que.

S

Sallows, A. J., St. John, N.B.
Salter, Capt. Jacob Wilson, Bridgetown, N.S.
Sampson, Henry, Brandon, Man.
Samson, Elmer E., Vernon, B.C.
Sanford, Miss Helen, Lethbridge, Alta.
Sanson, Clarence, Medicine Hat, Alta.
Saunders, James, New Glasgow, N.S.
Sauve, Joseph, Kingston, Ont.
Scellen, James A., Berlin, Ont.
Schoefield, Ernest A., St. John, N.B.
Scott, Alexander B., Smith's Falls, Ont.
Scott, Dr. Arthur M., Calgary, Alta.
Scott, J. W., Listowel, Ont.
Scott, Dr. William A., Toronto, Ont.
Scrimgeour, Fred G., Stratford, Ont.
Sealy, W. O., M.P., Hamilton, Ont.
Sealy, E. C., Stratford, Ont.
Seaman, Joseph, Liverpool, N.S.
Seaman, William B., Fort William. Ont.
Seincox, Miss Millicent, Saskatoon, Sask.
Semple, Miss Jessie P., Toronto, Ont.
Sexton, Mrs., Halifax, N.S.
Sexton, F. H., Halifax, N.S.
Shand, Frederick A., Windsor, N.S.
Shanks, John, Fernie, B.C.
Shannon, John A., Sault Ste. Marie, Ont.
Shaw, Edwin E., Sydney, C.B.
Shaw, F. H., Fernie, B.C.
Shaw, John, Nanaimo, B.C.
Shaw, Lloyd E., Middleton, N.S.
Shaw, Percy, Truro, N.S.
Shea, Dennis J., Fredericton, N.B.
Sheppard, Fred. W., Berlin, Ont.
Sheppard, Henry, Nanaimo, B.C.
Sheppard, Rice, Strathcona, Alta.
Shipman, Charles S., Winnipeg, Man.
Shortt, Harry B., Digby, N.S.
Sifton, Joseph W., Moose Jaw, Sask.
Silcox, Dr. Sydney, Stratford, Ont.
Silliker, T. J., Halifax, N.S.
Silver, Herbert J., Montreal, Que.
Simmons, Bennett, Regina, Sask.
Simms, Louis, St. John, N.B.
Simon, James, Chatham, Ont.
Simpson, Louis, Ottawa, Ont.
Simpson, Walter, Charlottetown, P.E.I.
Simpson, Herbert C., London, Ont.
Sinclair, John H., M.P., New Glasgow, N.S.
Sinclair, Dr. S. B., Ste. Anne de Bellevue, Que.
Sinclair William Edmund Newton, Mayor, Oshawa, Ont.
Sipprell, Wilford J., New Westminster, B.C.
Sissler, William J., Winnipeg, Man.
Skelton, Albert, Calgary, Alta.
Slackford, John, Truro, N.S.
Slipper, Mrs. Mary, Port Arthur, Ont.
Sliter, D. O., Kingston, Ont.
Smart, William George, Collingwood, Ont.
Smith, Albert C., Fredericton, N.B.
Smith, A. M., Listowel, Ont.
Smith, Cecil, Brantford, Ont.
Smith, Duncan, Strathcona, Alta.
Smith, Dr. Elford D., Sackville, N.B.
Smith, Harold G., Paris, Ont.
Smith, H. B., Owen Sound, Ont.
Smith, Henry, Listowel, Ont.
Smith, Herbert H., Saskatoon, Sask.
Smith, James, Chatham, Ont.
Smith, J. H., Stratford, Ont.
Smith, Joseph H., Hamilton, Ont.
Smith, Joseph W., Hampton, N.B.
Smith John A., Windsor, N.S.
Smith, John Forsyth, Vernon, B.C.
Smith, Lyman Cyrus, Oshawa, Ont.
Smith, Mark Ferris, Oshawa, Ont.
Smith, Maxwell, Vancouver, B.C.
Smith, P. J., Belleville, Ont.
Smith, Stephen F., Sherbrooke, Que.
Smith, William, Belleville, Ont.
Smith, William C., Lunenburg, N.S.
Snell, Dr. John, Ste. Anne de Bellevue, Que.
Snell, Joseph, Prince Albert, Sask.
Snowball, Mayor Archibald, Chatham, N.B.
Snowball, William B., Chatham, N.B.
Soloan, Dr. David, Truro, N.S.
Somerville, James, Moose Jaw, Sask.
Spaidal, Donald M., Brockville, Ont.
Spare, Emanuel, Paris, Ont.

Sparrow, John M., Toronto, Ont.
Speers, Charles H., Sault Ste. Marie, Ont.
Spinney, E. K., Yarmouth, N.S.
Springer, William C., Belleville, Ont.
Stadler, John, Shawinigan Falls, Que.
Stainsley, George W., Fort William, Ont.
Stairs, James, New Glasgow, N..S.
Stanfield, John, M.P., Truro, N.S.
Stanley, W. S., Fernie, B.C.
Stanton, Father William, Ottawa, Ont.
Staples, W, Allan, Fredericton, N.B.
Starret, Stanley A., Liverpool, N.S.
Stephenson, Edward S., St. John, N.B.
Stevens, Rufus, Sussex, N.B.
Stevens, Walter C., Chatham, N.B.
Stevenson, Harry, Medicine Hat, Alta.
Stevenson, Robert, Toronto, Ont.
Stewart, Angus, Sydney Mines, N.S.
Stewart, C. E., Woodstock, Ont.
Stewart, Claude F., Lethbridge, Alta.
Stewart, Frank, Sydney, C.B.
Stewart, James E., Toronto, Ont.
Stewart, James H., Antigonish, N.S.
Stewart, Miss Margaret, Calgary, Alta.
Stock, R. C., Woodstock, Ont.
Stock, Vallantyne, Stratford, Ont.
Stockall, Arthur, Moncton, N.B.
Storrie, Stewart, Oshawa, Ont.
Stovel, John, Winnipeg, Man.
Stratton, J. R., Peterborough, Ont.
Strong, Thomas, Woodstock, N.B.
Stuart, Robert Y., Berlin, Ont.
Studholme, Allan, Hamilton, Ont.
Suggitt, Harry A., Lethbridge, Alta.
Sullivan, Michael, Kingston, Ont.
Sutherland, Alexander, Wolfville, N.S.
Sutherland, Stanley, Amherst, N.S.
Sutton, William, Woodstock, N.B.
Surveyor, Arthur, Port Arthur, Ont.
Sweeney, Hon. Francis, Moncton, N.B.
Swicker, Arthur, Lunenburg, N.S.

T

Taché, J. de L., St. Hyacinthe, Que.
Tanner, Charles E., M.P.P., Pictou, N.S.
Tapscott, Charles, Brantford, Ont.
Taylor, Faucett G., Portage la Prairie, Man.
Taylor, Hugh, Brandon, Man.
Taylor, John A., St. Thomas, Ont.
Taylor, John M., Guelph, Ont.
Taylor, Lady, Hamilton, Ont.
Taylor, Margaret, Owen Sound, Ont.
Taylor, Rev. Morris, New Glasgow, N.S.
Taylor, Mayor, Vancouver, B.C.
Telfer, Herbert, Collingwood, Ont.
Tetrault, Joseph S., Sherbrooke, Que.
Thacker, William, Victoria, B.C.
Thicket, Alfred, Belleville, Ont.
Thomas, Wesley, St. Thomas, Ont.
Thomasson, Edmund M., Lethbridge, Alta.
Thompson, Fred., Windsor, N.S.
Thompson, Jerome, Kingston, Ont.
Thompson, Richard, Paris, Ont.
Thompson, Richard S., Portage la Prairie, Man.
Thompson, Willard S., North Sydney, N.S.
Thompson, William, London, Ont.
Thompson, William H., Calgary, Alta.
Tibbutt, John T., Three Rivers, Que.
Tisdale, Raymond, Peterborough, Ont.
Tobin, F. M., Woodstock, Ont.
Tom, J. E., Goderich, Ont.
Tompkins, J., Woodstock, N.B.
Tory, Dr. Henry N., Strathcona, Alta.
Townsend, William H., Kentville, N.S.
Trant, William, Regina, Sask.
Tregillus, William J., Calgary, Alta.
Tufts, Keltie J., Amherst, N.S.
Turnbull, Charles, Galt, Ont.
Turnbull, Thomas, New Westminster, B.C.
Tweed, Henry L., Medicine Hat, Alta.
Tweedie, Fred. M., Chatham, N.B.
Twiss, Miss Fanny, Galt, Ont.
Twohey, William, Chatham, Ont.
Tygert, J. H., Goderich, Ont.
Tytler, William, Guelph, Ont.
Tytler, William, London, Ont.

U

Underwood, Mrs. Lilian, Prince Albert, Sask.
Unwin, Commander C., Vancouver, B.C.
Urry, Frederick, Port Arthur, Ont.

V

Venne, Alphonse, Montreal, Que.
Verity, Percy, Brantford, Ont.
Verity, Robt. H., Toronto, Ont.

Vessot, Samuel, Joliette, Que.
Vickery, William A., Toronto, Ont.
Vilas, William F., Quebec, Que.
Vinter, William, Antigonish, N.S.
Vonasch, Arnold, Owen Sound, Ont.

W

Waddie, Henry J., Hamilton, Ont.
Waggoner, Gustave, Prince Albert, Sask.
Walker, Duncan, Peterborough, Ont.
Walker, Joseph G., Winnipeg, Man.
Walker, Robert, Sault Ste. Marie, Ont.
Walker, Dr. Smith, Truro, N.S.
Walker, William H., Quebec, Que.
Walker, Prof. W. O., Kingston, Ont.
Wallace, Burpee W., Prince Albert, Sask.
Wallace, E. A., Victoria, B.C.
Wallace, John J., Winnipeg, Man.
Wallace, William, Goderich, Ont.
Wallace, William John, Cornwall, Ont.
Walsh, Lyon O. P., Sydney, C.B.
Walsh, Michael, Quebec, Que.
Walsh, William, Antigonish, N.S.
Wanless, Archibald A., Sydney Mines, N.S.
Warburton, A. B., M.P., Charlottetown, P.E.I.
Ward, Calvin N., Amherst, N.S.
Ward, Fleetwood, Montreal, Que.
Ward, Robert S., Winnipeg, Man.
Warne, Hubert, Digby, N.S.
Warner, Daniel W., Edmonton, Alta.
Warters, William, Winnipeg, Man.
Waterous, Charles A., Brantford, Ont.
Watson, Adam, Lindsay, Ont.
Watson, Miss Mary Urie, Guelph, Ont.
Watt, Mrs. Madge Robertson, Victoria, B.C.
Watters, James C., Victoria, B.C.
Watts, Arthur M., St. Catherines, Ont.
Watts, George W., Toronto, Ont.
Wells, Albert S., Regina, Sask.
Werner, August, Berlin, Ont.
Westington, William J., Cobourg, Ont.
Weyman, Edward C., Hampton, N.B.
White, Alfred, Brandon, Man.
White, Arthur, London, Ont.
White, Col., Woodstock, Ont.
White, George, London, Ont.
White, Dr. James F., Ottawa, Ont.
White, Simeon W., Sussex, N.B.
White, Thomas, St. John, N.B.
Whitman, A. Handfield, Halifax, N.S.
Whitman, Francis C., Annapolis Royal, N.S.
Whittaker, William, Windsor, N.S.
Whitton, James, Hamilton, Ont.
Whyte, Rev. C. W., Vernon, B.C.
Whyte, David, Toronto, Ont.
Wickson, Paul, Paris, Ont.
Wickware, Ernest Hamilton, Smith's Falls, Ont.
Wickwire, H. H., Kentville, N.S.
Wilber, Louis, Windsor, Ont.
Wilcox, Albert, Port Arthur, Ont.
Wildman, John E., Winnipeg, Man.
Wiley, Franklin S., Port Arthur, Ont.
Wiley, James A., St. Catherines, Ont.
Wilkinson, James H., Toronto, Ont.
Willhofft, Prof. W. O., Kingston, Ont.
Williams, Elizabeth, Toronto, Ont.
Williams, Madison, Lindsay, Ont.
Williams, Mayor, Regina, Sask.
Williams, Samuel J., Berlin, Ont.
Williams, Thomas, Moncton, N.B.
Williams, Walter H., Berlin, Ont.
Williams, William, Collingwood, Ont.
Willis, Thomas R., Cornwall, Ont.
Willoughby, Dr. J. Henry C., Saskatoon, Sask.
Wilson, David, Victoria, B.C.
Wilson, Fredericka, Winnipeg, Man.
Wilson, Herbert G., Victoria, B.C.
Wilson, John E., St. John, N.B.
Wilson, Samuel, Halifax, N.S.
Wilson, William, Paris, Ont.
Wilson, William A., Saskatoon, Sask.
Wilson, William J., Toronto, Ont.
Wilson, W. MacPherson, Victoria, B.C.
Winning, James, Windsor, N.S.
Witherspoon, Robert, Shawinigan Falls, Que.
Wolfe, James Calgary, Alta.
Wolff, A. J., Lunenburg, N.S.
Wonacott, John, Charlottetown, P.E.I.

Wood, Elenore A., Fort William, Ont.
Wood, W. B., Mayor, Brantford, Ont.
Woods, John, Cornwall, Ont.
Woodsworth, Rev. James S., Winnipeg, Man.
Wormsley, Walter, Truro, N.S.
Wright, Prof. Charles H. C., Toronto, Ont.
Wright, Miss Elizabeth, Collingwood, Ont.
Wright, Fred. W., St. Thomas, Ont.
Wright, Horace, Summerside, P.E.I.
Wright, Rev. J. Knox, Nanaimo, B.C.
Wyatt, Robert, Sherbrooke, Que.
Wylie, John, Ottawa, Ont.

Y

Yeates, Ernest, Hamilton, Ont.
Yeo, Charles, Galt, Ont.
Yellowly, William, Kingston, Ont.
Young, Hon. Dr., Victoria, B.C.
Young, Adam, Amherst, N.S.
Young, Clarence R., Toronto, Ont.
Young, David, Guelph, Ont.

Z

Zavitz, Prof.Charles A., Guelph, Ont.